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ABSTRACT

The Wisconsin Department of Public Instruction has contracted with the Wisconsin Center for Education Research to develop and field test performance assessments in mathematics, language arts, and science. Together with a Wisconsin-developed knowledge and concepts test, the new performance assessments will provide important information about the state's students. These samples of prototype performance assessments describe the assessment's content and present examples of proficient student responses. While they are not polished activities, they do provide a working description of the content and academic expectations in the performance assessment instruments. All of the instruments use the same score categories, ranging from advanced response to not scorable. Samples are included for the mathematics, science, and language arts performance assessments. Questions and answers about their construction and use follow the examples. (Contains 8 figures and 10 references.) (SLD)

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Wisconsin Student Assessment System

Performance Assessment Sampler

Wisconsin Department of Public Instruction
Madison, Wisconsin

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Foreword

In Wisconsin, with its tradition of local control of education, what is the role of the state in student assessment?

Because the U.S. population is highly mobile, many people feel the need for a common educational base. Still, most reject the idea of an inflexible national or state curriculum or a single, national test.

Perhaps what the state can best do is determine and share with the public the knowledge and skills that educators and the business community in that state regard as essential and the proficiency expected of students.

The state should also develop assessments that yield valid information about how well students are meeting the desired proficiency levels. The state can provide one final service by providing school districts with the technical assistance to help them improve their students' performance. Most school districts have neither the financial nor the people resources to do these things.

As one step in fulfilling these legitimate state roles, the Department of Public Instruction has contracted with the Wisconsin Center for Education Research at the University of Wisconsin-Madison to develop and field test performance assessments in mathematics, language arts, and science. Together with a Wisconsin-developed knowledge and concepts test, the new performance assessments will provide important information to students, parents, teachers, and districts that will help guide best teaching practices.

I am pleased to present these samples of prototype performance assessments. The descriptions of the content are included along with examples of proficient student responses. None of this should be regarded as a finished product but as a focus for discussion as we progress toward voluntary administration of performance assessments in mathematics and language arts early in 1996 and the full implementation year, 1996-97. Please contact the Office for Educational Accountability with your comments and feedback.

The sampler will be of interest to a number of different groups. Administrators want the basic information about the state's assessment plans to speak knowledgeably to their educational personnel, boards of education, and parents and other community members. Teachers will want to know the formats and scoring criteria for the tests to most efficiently prepare their students. Parents and other community members will be interested in knowing what is expected of students in traditional subject areas and test it against their own expectations.

Development, field testing, and scoring of performance instruments and tasks continue through 1996. Voluntary assessment in language arts and mathematics is planned for spring 1996, with mandatory assessment beginning in 1997. Science performance assessment follows á year behind, with voluntary assessment in 1997 and mandatory assessment in 1998. Social studies implementation is targeted to begin voluntarily in 1999.

The department wants to acknowledge all the hard work and contributions of more than 500 Wisconsin educators and other citizens and the thousands of students who have contributed to the development of performance assessments during piloting and field testing. We know that the interest and involvement of educators, parents, and business will ensure the ultimate success of the Wisconsin Student Assessment System.

John T. Benson

John T. Benson
State Superintendent

Wisconsin Student Assessment System

Wisconsin Act 269, which Gov. Tommy Thompson signed into law in 1992, provided for the broad-based development of statewide educational goals and an assessment system to measure key learner goals. The statutes purposely did not require districts and schools to use specific processes and procedures to meet the goals. The state's role was to establish goals and to assess student performance related to the first three learner goals.

During the fall of 1992, a committee that included the governor, the state superintendent of public instruction, the president of the University of Wisconsin System, and eight other citizens held public hearings throughout Wisconsin. As an outgrowth of these hearings, the committee formulated 28 educational goals, which fit into three categories: learner goals, institutional support goals, and societal support goals.

The goals committee specifically stated that the first three learner goals should be the focus of the mandated statewide assessment.

Learner Goals for Assessment

The learner will:

1. **Build a substantial knowledge base.** Students will build a solid knowledge base developed from challenging subject matter in computer/information technology, environmental education, fine and performing arts, foreign language, health, language arts, mathematics, physical education, reading, science, social studies, and vocational education.
2. **Develop thinking and communication processes**. Students will develop a command of thinking processes (analysis, creative thinking, problem solving, decision making, visualizing, concept development) that permit them to interpret and apply the knowledge base. Communication processes (listening, speaking, reading, writing, viewing, image making, and other symbolizing) enable them to communicate thoughts with others.
3. **Apply knowledge and processes.** Students will build upon knowledge and apply learning processes to create new ideas and understandings, enhance human relations, expand awareness, and enrich experiences.

This assessment system—the Wisconsin Student Assessment System (WSAS)—continues to evolve through the efforts of many people throughout Wisconsin. Teachers, Department of Public Instruction staff members, and professional assessment contractors are developing the assessment system.

The purpose of the assessment system is to

- provide clear expectations for student learning,
- provide student achievement data relative to the expectations,
- promote high quality curriculum and instruction, and
- provide feedback to students to assist in educational planning.

The assessment system includes knowledge and concepts tests, performance assessment, and voluntary local portfolio assessment.

Knowledge and concepts tests consist of multiple-choice and short-answer questions designed to assess a student's knowledge base in language arts, mathematics, science, and social studies. Each subject subtest consists of 30 to 40 questions and requires 30 to 50 minutes for the student to complete. The multiple-choice questions are machine scored, and short-answer questions are scored by trained scorers.

Performance assessments require students to apply the knowledge and information they have learned in real world and classroom problem-solving situations. Each task requires that

the student construct and communicate his or her own answer. In general, the tasks in the performance assessment are more complex than knowledge and concepts tests and require students to apply information from multiple sources. The performance assessments require three to five class periods for each subject (language arts, mathematics, science). These performances are scored by trained scorers. Social studies may be added to the list of subjects for performance assessment if the Legislature and governor approve additional funding.

Portfolio assessments show a student's progress over longer periods of time and include student reflection on how he or she is applying information to solve problems. Each school district will determine the details of the portfolio—such as what is included, how the information is used, and scoring. The DPI provides a definition for portfolio assessment, a model, and guidelines for staff development.

Performance Assessment

In one sense, any test could be called a performance assessment because the test taker is required to do something. Even writing "true" or "false" or circling one of four possible answers on a multiple-choice test is a type of performance. Some educators distinguish between *selected response* tests in which the students select answers from limited possibilities (true/false, multiple-choice, matching) and *constructed response* in which students must produce an answer from their own knowledge and in their own words. Constructed response tests are called performance assessments. Currently, however, most educators reserve the term performance assessment for tests that require complex performances during which students are expected to apply knowledge and skills in sustained activities or demonstrations that may require from 15 minutes to several hours to complete.

Performance assessments are one response to critics of education who claim that high school graduates are unable to apply what they have learned in practical ways. For some time, educational theory was dominated by the belief that learning occurred in isolated parts. A person began by learning small bits of information and gradually accumulated them into larger and larger units. Research now suggests that fragmenting knowledge in this way is counterproductive. Sometimes not much time is spent on application because it is rarely tested. Educators, parents, and students need to find out whether students can really bring together a variety of knowledge and skills to accomplish a broader purpose. Selected response tests, while economical and efficient, do not provide information about student ability to perform in this larger sense.

Performance assessments are not new. Most people are familiar with a number of performance tests. Perhaps the most familiar is the road test that is required to obtain a driver's license. Most people will agree that driver's licenses should not be issued on the basis of a multiple-choice test. Musical recitals, paintings and sculptures in art classes, projects in technical classes, and portfolios developed by architects and engineers are other examples. What is less familiar is the idea of using performance assessments in traditional academic areas. Even here, performance assessments are not new. Writing sample tests in which students are required to write essays or other forms of text have been a feature of statewide assessments for about 15 years.

To promote the kind of education that employers and higher education demands, teachers must teach students to connect and apply their knowledge by using tests that require this kind of learning. Performance assessments are one response to that need.

History of Performance Assessment in Wisconsin

The Wisconsin Center for Education Research (WCER) at the University of Wisconsin-Madison, in cooperation with the Department of Public Instruction, continues to develop the performance assessment component of the WSAS. Mathematics and language arts development

began in the fall of 1992, and science development began a year later. Following is the timeline for performance assessment in Wisconsin, if the Legislature and governor approve funding.

1994-95: Continued development of performance assessment in language arts, mathematics, and science
1995-96: Voluntary administration of mathematics and language arts assessments.
Continued development of performance assessment in science; large field testing.
1996-97: Mandatory administration of mathematics and language arts assessments.
Voluntary administration of science assessments.
1997-98: Performance assessments mandatory for language arts, mathematics, and science as of spring 1997.

The development of performance assessment in each of the curricular areas has followed a similar pattern of scrutiny and evaluation. Wisconsin teachers in each of the specific subject areas have written trial assessment instruments and tasks, which were then edited by professionals at WCER and DPI and returned to the teachers and writers for trials by small groups of students. Student responses were used in editing and reworking. The items were then field tested in a sample of classrooms across the state, and papers were scored by teachers trained in the scoring process.

Sample Instruments and Tasks

The sample instruments and tasks in this guide are not polished activities, but they provide a working description of the content and rigorous academic expectations in the performance assessment instruments. They also provide a starting point for parents, students, and teachers to discuss and understand the concepts in the assessments.

All of the performance assessment instruments and tasks use the same score categories: advanced response, proficient response, nearly proficient response, minimal response, attempted response, and not scorable. Scorers use benchmark papers for each score category and at each grade level. These benchmark papers are guides for assigning scores. The various benchmark papers reflect the fact that no two papers—even two advanced responses—are identical because students express themselves in difference ways.

Description of Score Categories

Advanced Response: The response is distinguished in that it goes well beyond the criteria for a Proficient Response. It gives evidence of such characteristics as reflection upon work; insightful, creative approaches to the task; elegant communication using a variety of media; and sound reasoning.
Proficient Response: The response addresses all aspects of the task. It shows full application of appropriate knowledge and skills, and uses methods of communication that are appropriate to the subject area and task. The response is conceptually and mechanically complete although an occasional minor mechanical error may be present.
Nearly Proficient Response: The response addresses most of the essential conditions of the task, but there is some evidence of misconceptions, or evidence of the application of inappropriate knowledge or skills. Communication is somewhat unclear or incomplete.
Minimal Response: The response addresses some of the essential conditions of the task. It gives evidence of major misconceptions and demonstrates very little evidence of correct usage of content knowledge or mechanical skills. Communication is unclear or incomplete.
Attempted Response: The response gives little evidence of addressing the task but meets none of the essential criteria.
Not Scorable: The paper is blank, or the response is irrelevant or unreadable.

Mathematics Performance Assessment

Students must be able to understand and apply mathematical ideas and concepts to make informed decisions in daily life and to enter careers in areas such as science, business, finance, and health. Once students have some knowledge of mathematics, they can begin to make connections between the computation and the problems presented in a mathematical context; apply mathematical concepts to reason and solve the problems; and communicate using mathematical language and symbols.

In the past, multiple-choice tests were used in large scale assessments as the sole indicators for gathering data to evaluate students' mathematical knowledge. Performance assessment tasks, however, encourage the application of knowledge, and the information gathered from the tasks provides a more complete picture of what a student knows and is able to do.

Instrument Description

Mathematics performance assessment instruments in the Wisconsin Student Assessment System (WSAS) consist of four to six tasks and are administered at grades four, eight, and ten. The tasks are based on the Wisconsin Learner Goals and Outcomes, the DPI's *A Guide to Curriculum Planning in Mathematics,* and the National Council of Teachers of Mathematics (NCTM) Curriculum and Evaluation Standards.

Students are expected to complete the assessment tasks in approximately three 40- to 50-minute class periods. To encourage students to do their best, they are given the entire instrument each day of the assessment period as an opportunity to revisit their work or look ahead to better prepare their responses. At the beginning of each assessment period, students are reminded to show their work, check their work, and explain their thinking in writing for each performance task.

Students are expected to use a variety of equipment, supplies, and manipulatives. They should have calculators, rulers or measuring tapes, compasses, and protractors. Additional materials required to perform the tasks are listed in the teachers' guide, and it is the teacher's responsibility to make sure that all students have access to the materials. The contractor will provide materials that are necessary to perform a task but that are not commonly used in classrooms.

It is essential that all students become familiar with the scoring criteria before beginning the tasks. In each instrument, the tasks require students to apply important mathematical knowledge, to solve mathematical problems, to reason mathematically, and to communicate mathematically.

Each mathematics performance assessment in WSAS addresses the first three Wisconsin Learner Goals and nine of the 17 Wisconsin Learner Outcomes (see Figure 1). The first four NCTM standards for school mathematics, which are applicable for all grade levels, also are taken into consideration (see Figure 2). The sample assessment tasks that follow were written for and administered at grade eight. Each task addresses one or more of the remaining nine NCTM standards for grades five through eight (see Figure 3).

The tasks are written in a mathematical context and require students to apply mathematical knowledge appropriate for the grade level (four, eight, or ten). The content topics described for elementary, middle, and high school students, beginning with NCTM Curriculum Standard 5, make up the mathematical content of the performance assessment. Possible topics to de-

scribe the mathematical content for performance assessment include:

- Number, number relationships, number systems, and number theory
- Computation and estimation
- Fractions, decimals, and percents
- Algebra
- Patterns and functions
- Geometry and measurement
- Statistics and probability
- Trigonometry
- Mathematical structure

Figure 1

Wisconsin Learner Outcomes as Reflected in Mathematics

Wisconsin Learner Outcomes	Mathematics Outcomes
1. Identify, develop, evaluate, and apply criteria to ideas, products, and performances of one's self.	1. Identify, develop, evaluate, and apply mathematical criteria to mathematical ideas, products, and performances of one's self or others.
2. Revise a product, performance, system, and idea in response to relevant information.	2. Revise a mathematical product, process, performance, system, or idea in response to relevant information.
4. Achieve desired results by interpreting and executing instructions, plans, models, and diagrams.	4. Achieve desired mathematical results by interpreting and executing instructions, plans, models, and diagrams.
5. Recognize and devise systems and describe their interdependence.	5. Recognize and use the connections of mathematics within itself and to other disciplines.
8. Transfer learning from one context to another.	8a. Apply the process of mathematical modeling to problem situations. 8b. Generalize solutions and strategies to other problems.
9. Recognize, define, and solve a problem.	9. Recognize, define, and solve a mathematical problem.
10. Recognize and communicate one's strategies for accomplishing objectives.	10. Reflect upon and communicate the process used for solving a problem.
12. Defend a position by combining information from multiple sources.	12. Present a convincing mathematical argument that justifies a solution process or validates a generalization.
13. Develop and test a hypothesis.	13. Develop and test a mathematical conjecture.

The First Four NCTM Curriculum and Evaluation Standards: A Summary

The National Council of Teachers of Mathematics (NCTM) has developed the following four national mathematics standards, which apply to all grade levels (K-12). These four standards are incorporated to some degree in all mathematics performance assessment tasks in the Wisconsin Student Assessment System. NCTM also has developed additional standards that are specific to certain grade levels (see Figure 3).

Mathematics as Problem Solving—Problem solving should be a central focus of the mathematics curriculum. Problem solving is a process, not a topic. It should permeate the curriculum and provide a context in which concepts and skills can be learned and applied. As students are exposed to a wide variety of mathematical problems at varying levels of complexity, strategies become internalized and automatic, making it easier for students to develop a framework for handling problems that require a broad scope of mathematical content.

Mathematics as Communication—It is essential for students to understand the symbolic language of mathematics. They need these symbols to interpret mathematical ideas and make connections between various mathematical representations in which problems may be written and solutions described. Students can better comprehend and learn from the ideas of others and clarify and expand their own mathematical thinking when they communicate with mathematical language.

Mathematics as Reasoning—Mathematical reasoning is the basic building block that makes it possible for students to do problems. Students need to be able to logically construct and confidently defend their choice of strategy in working a mathematical problem as well as be able to understand the rationale behind methods used by others to find an appropriate solution. In this way, students can become comfortable with their ability to purposefully choose and implement a problem-solving strategy.

Mathematical Connections—The ability to make mathematical connections allows students to be able to see mathematics as an integrated whole rather than a collection of isolated topics and so understand its usefulness in school subjects besides mathematics, as well as the world outside of school. In addition, students need to be able to recognize equivalent expressions to describe concepts in mathematics and understand that there are equivalent procedures to reach problem solutions.

Figure 3

NCTM Curriculum Standards for Grades 5 through 8

The National Council of Teachers of Mathematics (NCTM) has developed the following nine curriculum standards of appropriate mathematical content that are included in eighth-grade mathematics performance assessment tasks in the Wisconsin Student Assessment System. These are in addition to the mathematics standards of problem solving, mathematics as communication, mathematics as reasoning, and mathematical connections, which apply to grades K-12 (see Figure 2).

5. **Number and Number Relationships**—Understand equivalent numbers; use fractions, decimals, ratios, proportions, and percents; draw numerical graphs.
6. **Number Systems and Number Theory**—Understand and order whole numbers, fractions, and decimals; extend understanding of number operations.
7. **Computation and Estimation**—Compute with integers, fractions, and decimals; develop estimation and proportional reasoning skills to solve problems.
8. **Patterns and Functions**—Recognize, describe, create, and extend mathematical patterns; represent functional relationships in graphs and tables.
9. **Algebra**—Represent number situations, relations, and patterns in equations and graphs; solve linear equations; investigate inequalities and nonlinear equations.
10. **Statistics**—Collect, organize, describe, and analyze statistical data; read, interpret, and construct tables, charts, and graphs based on statistical data.
11. **Probability**—Mathematically determine the probability of the occurrence of an event; make mathematical predictions based on probability.
12. **Geometry**—Identify, describe, compare, and classify geometric figures; understand geometric properties and relations; represent geometric figures.
13. **Measurement**—Extend understanding of the process of measurement and the concepts of perimeter, area, volume, angle measure, capacity, weight, and mass.

Scoring Mathematics Performance Assessments

Scorers use benchmark papers that illustrate each score category in analyzing students' work. In scoring they consider four basic criteria: mathematics content, mathematical problem solving, mathematical reasoning, or communication in mathematics.

- The student must appropriately apply mathematics to the task, showing understanding of underlying mathematical concepts, procedures, and structures.
- The student must demonstrate the use of problem-solving skills to satisfy all the essential conditions of the task. The student also must justify the strategy used when asked to do so.
- The student must show evidence of mathematical reasoning to communicate the mathematical facts, properties, or relationships in justifying the process used to solve the task.
- The student must demonstrate an understanding of the task through the clear and coherent use of words and mathematical symbols to communicate both process and product.

Embedded in these criteria areas are evidence of the student's ability to make connections between the task and the knowledge and processes necessary to solve each task.

Description of Score Categories

- **Advanced Response**: The response is distinguished in that it goes well beyond the criteria for a Proficient Response in an insightful and creative approach to the task.
- **Proficient Response**: The response completely addresses all aspects of the task. It includes:
  — appropriate application of mathematical concepts and structures;
  — evidence of the use of appropriate mathematical procedures;
  — coherent use of mathematical words, symbols, or other visual representations that are appropriate to the task; and
  — logical conclusions based upon known facts, properties, and relationships.
- **Nearly Proficient Response:** The response addresses most of the essential conditions of the task but needs some development. There is evidence of a minor flaw in the use of appropriate mathematics, mathematical problem solving, mathematical communication, or mathematical reasoning in the task.
- **Minimal Response:** The response addresses some of the essential conditions of the task but needs significant development. There is evidence of a major flaw in the use of appropriate mathematics, mathematical problem solving, mathematical communication, or mathematical reasoning in the task.
- **Attempted Response**: The response gives little evidence of addressing the task but meets none of the essential criteria.
- **Not Scorable**: The paper is blank, or the response is irrelevant or unreadable.

Sample Mathematics Tasks

These mathematics tasks are for eighth-grade students. Wisconsin teachers are involved in all phases of the development of this project. In addition, groups of mathematics educators, curriculum and assessment supervisors, and others working in education and related fields continue to provide assistance in the planning design, development, and implementation of the mathematics performance assessment system. The tasks are designed to encourage each student to respond at his or her level of mathematical development. Partial responses do not sufficiently meet the criteria established for each task.

Sample Task One: All in a Day's Work

This task requires students to divide a $60 payment among three workers and provide two different justifications for the solution, basing at least one of the explanations upon the diagram provided. In their solutions, students must also provide some evidence of understanding fractional and/or whole number calculations.

Wisconsin Learner Outcomes addressed

- Wisconsin Learner Outcome 8: Transfer learning form one context to another.
- Mathematics Outcome 8a: Apply the process of mathematical modeling to problem situations.

In one part of All in a Day's Work, the student is asked to use a mathematical model to show the way in which three friends might divide the work of raking a yard.

- Wisconsin Learner Outcome 10: Recognize and communicate one's strategies for accomplishing objectives.
- Mathematics Outcome 10: Reflect upon and communicate the process used for solving a problem.

The student is asked to justify the solution by explaining the process used to determine each friend's fair share of the $60 paid for raking the yard.

NCTM Curriculum Standards addressed

- NCTM Standard 5 for grades five to eight: Number and Number Relationships.

The task elicits the student's understanding of fractional relationships as they apply to dividing the yard into segments.

- NCTM Standard 7 for grades five to eight: Computation and Estimation.

In solving the problem, the student uses whole number and fractional computation and estimation to determine the portion of the yard each friend rakes and what part of the $60 each friend earns.

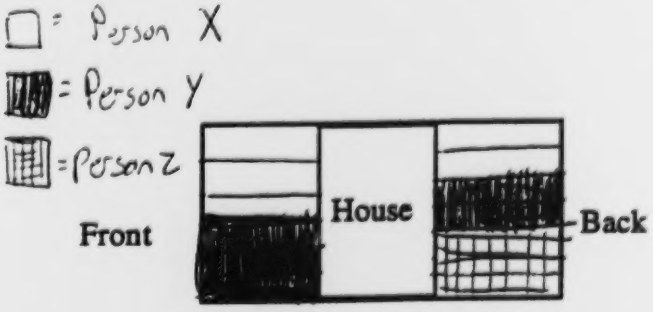
All in a Day's Work: Student Example A

Your neighbor hired you and two of your friends to rake leaves. The house has a back yard and a front yard that are about the same size. The neighbor agreed to pay the three of you $60 for the entire job.

On the day of the job you and one friend arrived to start the job at 9 a.m. By the time the third friend came, the front yard was finished. All three of you finished the back yard together.

How should the money be split between you? Each person must be paid based on the amount of the yard raked by that person.

Justify your solution in two ways. In one of the ways, use the following sketch.



1. Explain your first way:

I broke the yard into 12 segments, 6 in back and 6 in front. Since person X and Y did half the front yard each, they would have done 3 segments each. In the back, Person X, Y, and Z all did a third of the yard, or 2 segments. I divided 12 segments into $60 so each segment raked is worth $5. Person X did 5 segments and gets $25. Person Y did the same, and also gets $25. Person Z did 2 segments and gets $10.

2. Explain your second way:

Each ½ yard is worth a total of $30. Person X did ½ of the work in the front and gets $15 for that. Person Y did ½ of the work in front and gets $15 too. Each of the three did ⅓ of the work in back and get $10 each. Person X gets $25 total, Person Y gets $25 total, and person Z gets $10 total.

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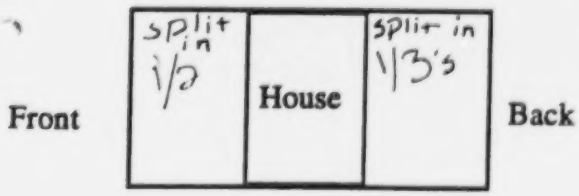
All in a Day's Work: Student Example B

Your neighbor hired you and two of your friends to rake leaves. The house has a back yard and a front yard that are about the same size. The neighbor agreed to pay the three of you $60 for the entire job.

On the day of the job you and one friend arrived to start the job at 9 a.m. By the time the third friend came, the front yard was finished. All three of you finished the back yard together.

How should the money be split between you? Each person must be paid based on the amount of the yard raked by that person.

Justify your solution in two ways. In one of the ways, use the following sketch.



1. Explain your first way:

The 30 dollars for the front should go to the 2 friends that started. That's $15 each. The Back yard work ($30) should be split among the 3.

first person	second	third
$15	$15	$0
$10	$10	$10
$25.00	$25.00	$10.00

2. Explain your second way:

1/2 = 3/6
+ 1/3 = 2/6
5/6

The first 2 friends will get paid for 5/6 of the work while the 3rd person will get 1/6 of the $60.

5/6 of $60 is $50 ÷ by 2 = $25.00 for first 2 friends
1/6 of $60 is $10 : 1 = $10.00 for 3rd friend

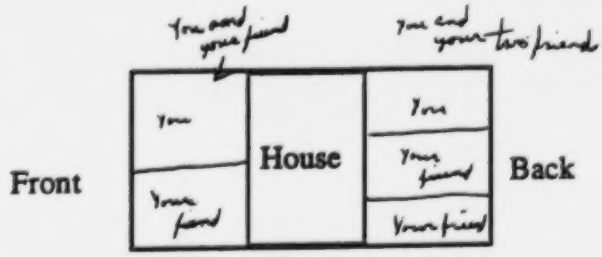
All in a Day's Work: Student Example C

Your neighbor hired you and two of your friends to rake leaves. The house has a back yard and a front yard that are about the same size. The neighbor agreed to pay the three of you $60 for the entire job.

On the day of the job you and one friend arrived to start the job at 9 a.m. By the time the third friend came, the front yard was finished. All three of you finished the back yard together.

How should the money be split between you? Each person must be paid based on the amount of the yard raked by that person.

Justify your solution in two ways. In one of the ways, use the following sketch.

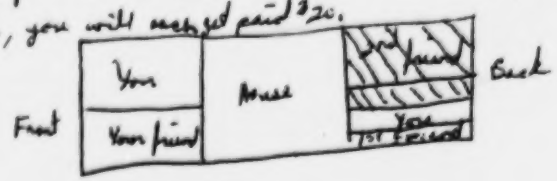


1. Explain your first way:

If you and your friend raked one half of the front yard each, and the front and the back yards are equal, then first, you need to take the $60 and divide it in two parts. One part is the payment for the front yard, and the other is the payment for the back yard. $60 ÷ 2 = $30. So, if you get paid $30 dollars for the front yard, we need to divide that in half again. My friend and I get paid equal amounts like each get paid $15. Then, my other friend shows up for the back yard, and we get paid $30 for that part of the yard also. Again we rake equal parts of the lawn, and there are three of us. So we divide $30 ÷ 3 = $10. I get paid $25; my friend who helped me rake both sections of the lawn also gets paid $25, and the friend who showed up late gets $10.

2. Explain your second way:

If you and your friend already raked half of the lawn you were going to do this means you each have done ½ of the front lawn. If you make your friend do ⅙ of the back lawn and you and your first friend split up the ⅓ of the lawn leftover, you will each get paid $20.



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Aspects of Proficient Responses: All in a Day's Work

One common solution for this task was to first divide the job in half, allowing for two separate jobs with the front and the back yards considered separately, each having a worth of $30. Once this was done, the front yard was separated into halves or divided by two, and the back yard was separated into thirds or divided by three. Students either divided $30 by two and three, or took 1/2 and 1/3 of $30 to determine each person's share of the total $60 (Student Examples A, B, and C).

Another common solution was to consider that the job as a whole is worth $60. In this solution, the front yard is considered 1/2 of the entire job. The back yard is divided into three equal parts and each is 1/6 of the whole yard. In this solution, two of the friends completed 1/2 of the job and an additional 2/6 of the job, meaning that the two of them raked 5/6 of the entire yard and should receive 5/6 of the $60. The friends then divide the resulting $50 by two or each take half of it. The third friend gets $10 for raking 1/6 of the yard (Student Example B).

A few students divided the yard into twelve pieces, six segments in the front yard and six segments in the back yard. In this solution, two of the friends raked three segments in the front yard and two segments in the back yard or five segments (5/12) of the whole yard. The third friend raked two segments of the back yard (2/12 or 1/6) of the entire yard. The students then divided the $60 payment into 12 segments and multiplied by the number of segments each friend raked to determine payment for each of the three friends (Student Example A).

Some students decided to share the work equally, so that each friend would receive $20 of the $60 payment. In one such case, the student explained that two of the friends raked 1/2 or 3/6 of the front yard. The friends then divided the back yard into sixths, giving 4/6 to the third friend, and splitting the remaining 2/6 between the two who raked the front yard. Therefore, each friend rakes an equal portion of the entire yard (Student Example C).

A proficient response uses the appropriate mathematics to determine what payment each friend should receive based upon the portion of the yard raked. Calculations and explanations supporting each solution are present and provide a clear and coherent justification for the problem-solving approach used (Student Examples A, B, and C).

Sample Task Two: The Allowance Mystery

This task requires students to compare numbers through ratios and proportional reasoning. The ratios are converted to percentages to communicate the relative increase or decrease in Terry's allowance compared to the family income. Simple increase and decrease in the allowance and income figures are also considered. Students are given an opportunity to choose different ways to communicate the reasoning behind each family member's statement about Terry's allowance, to mathematically justify their reasoning, and to explain how data can be mathematically interpreted in a variety of ways.

Wisconsin Learner Outcomes addressed

- Wisconsin Learner Outcome 9: Recognize, define, and solve a problem.
- Mathematics Outcome 9: Recognize, define, and solve a mathematical problem.

In the Allowance Mystery task, students are asked to recognize and solve a mathematical problem by first defining how each statement about Terry's allowance can be described mathematically.

- Wisconsin Learner Outcome 12: Defend a position by combining information from multiple sources.
- Mathematics Outcome 12: Present a convincing mathematical argument that justifies a solution process or validates a generalization.

The student is asked to reflect upon and communicate the process necessary to justify three different conclusions based upon data which includes a student's total yearly allowance and total income of the student's family in a consecutive two-year period.

NCTM Curriculum Standards addressed

- NCTM Standard 5: Number and Number Relationships.

The task requires students to understand numbers and number relationships, specifically in the areas of ratio and percentage in comparing the allowance to the family's total income and comparing the percentage of growth in the allowance to the percentage of growth of the family income.

- NCTM Standard 7: Computation and Estimation.

Computation and estimation of whole numbers, decimals, fractions, and percents is needed to mathematically justify the explanations and comparisons made between the family income and Terry's allowance.

The Allowance Mystery: Student Example A

Year	Total Yearly Allowance	Total Family Income
1992	$250	$25,000
1993	$260	$26,000

The table above shows Terry's total yearly allowance and his family's total income for the year. **Between 1992 and 1993 the cost of living increased by 8%.**

Terry's family was discussing the change in his allowance between 1992 and 1993:

- Terry's older sister, home from college, insisted that Terry's allowance had increased.
- Terry complained that the allowance had gone down.
- Terry's mother maintained that, in fact, there had been no change in the allowance system.

Describe how each person's opinion could be valid.
Use mathematics to justify each point of view.

Terry's opinion is valid, because if his 1992 allowance ($250) is increased by 8% ($250 × 1.08), he would get 270$ = 10$ more than he gets now (260$). Ergo he will get less merchandise for his allowance.

Terry's sister's point is valid, because there was an increase in actual dollars ($260 - $250 = $10) of 10$.

Terry's mom's point is valid, because he gets 1/100 of the family income both years. ($250/$25000 = $260/$26000 = 1/100)

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The Allowance Mystery: Student Example B

Year	Total Yearly Allowance	Total Family Income
1992	$250	$25,000
1993	$260	$26,000

The table above shows Terry's total yearly allowance and his family's total income for the year. **Between 1992 and 1993 the cost of living increased by 8%.**

Terry's family was discussing the change in his allowance between 1992 and 1993:

- Terry's older sister, home from college, insisted that Terry's allowance had increased.
- Terry complained that the allowance had gone down.
- Terry's mother maintained that, in fact, there had been no change in the allowance system.

Describe how each person's opinion could be valid.
Use mathematics to justify each point of view.

25000
.04
200000
27000

- Terry's allowance has increased by 10 dollars ~~a year~~ 260 − 250 = 10 He gets more money now the allowance has increased in th amount. ~~the mufi gets~~
- Terry's allowance has gone down if you consider the cost of living. If the family's income is $27000, and they used the same system, he would be getting the same, because the cost of living has gone up ~~bad~~ by a higher percentage than his allowance. cost of living up 8%, allowance went up 4%
- Terry's mother is right because each year he gets 1% of the family's income.

$\frac{260}{250} = \frac{x}{100}$ $\times 4$ 04

$250x = 26000$

$\frac{250x}{250} = \frac{26000}{250}$

$\frac{250}{25000} = \frac{x}{100}$ $25000 \times .01$

$25000x = 25000$

$= 1$

52 | 250 | 4.0807 | 208 | 420 | 41%

M8-93-05-3

Aspects of Proficient Responses: The Allowance Mystery

Student responses for this task were similar. The way in which the response is organized and the way in which the supporting mathematical calculations are presented vary somewhat from student to student.

In a proficient response, appropriate mathematical computations using ratios, proportions, fractions, decimals, and/or percentages are present, relate directly to the problem, and are mechanically accurate. There is evidence of meeting the essential conditions of the problem with supporting arguments to mathematically explain each family member's point of view. The student shows understanding through the clear and coherent use of words and mathematical symbols related to ratios, proportions, fractions, decimals and/or the use of percentages in the performance (Student Examples A and B).

Sample Task Three: Fencing the Dog

Students are asked to vary the dimensions of a rectangular dog pen while keeping the perimeter constant at 64 yards. After drawing three possible models for the pen, students are asked to label two of the pens they have drawn, the one with the largest area (M) and the one with the smallest area (L). Students are then asked to explain and analyze the relationship between area and perimeter by using mathematics to explain how larger and/or smaller pens might be drawn and to describe the largest pen that can be drawn with a perimeter of 64 yards.

Wisconsin Learner Outcomes addressed

- Wisconsin Learner Outcome 4: Achieve desired results by interpreting and executing instructions, plans, models, and diagrams.
- Mathematics Outcome 4: Achieve desired mathematical results by interpreting and executing instructions, plans, models, and diagrams.

The task of building a dog pen for Max requires students to apply mathematical modeling to a problem situation in drawing possible pens and labeling their dimensions, to interpret and describe the varying areas of the mathematical models, and to compare the student-generated models to possible pens with larger or smaller areas that might be considered.

- Wisconsin Learner Outcome 13: Develop and test a hypothesis.
- Mathematics Outcome 13: Develop and test a mathematical conjecture.

Students are asked to develop a method for finding a pen with the largest area while keeping the perimeter constant, to test the method mathematically, and to explain their results.

NCTM Curriculum Standards addressed

- NCTM Standard 8: Patterns and Functions.

The task requires students to determine how the perimeter and area of a rectangle are related by identifying a pattern in the calculations or in the models drawn of the dog pens.

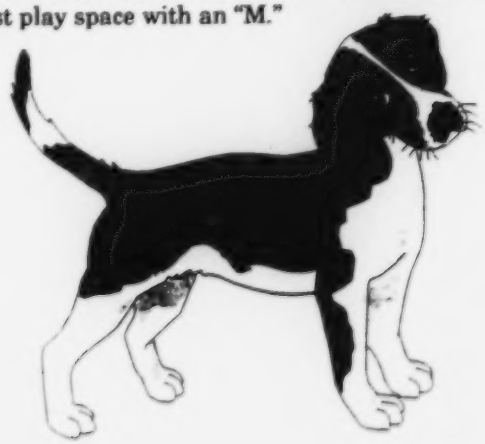
- NCTM Standard 13: Measurement.

Measurements of the sides of the rectangular pens drawn are used to calculate area and relate the changing areas to the constant perimeter of 64 yards.

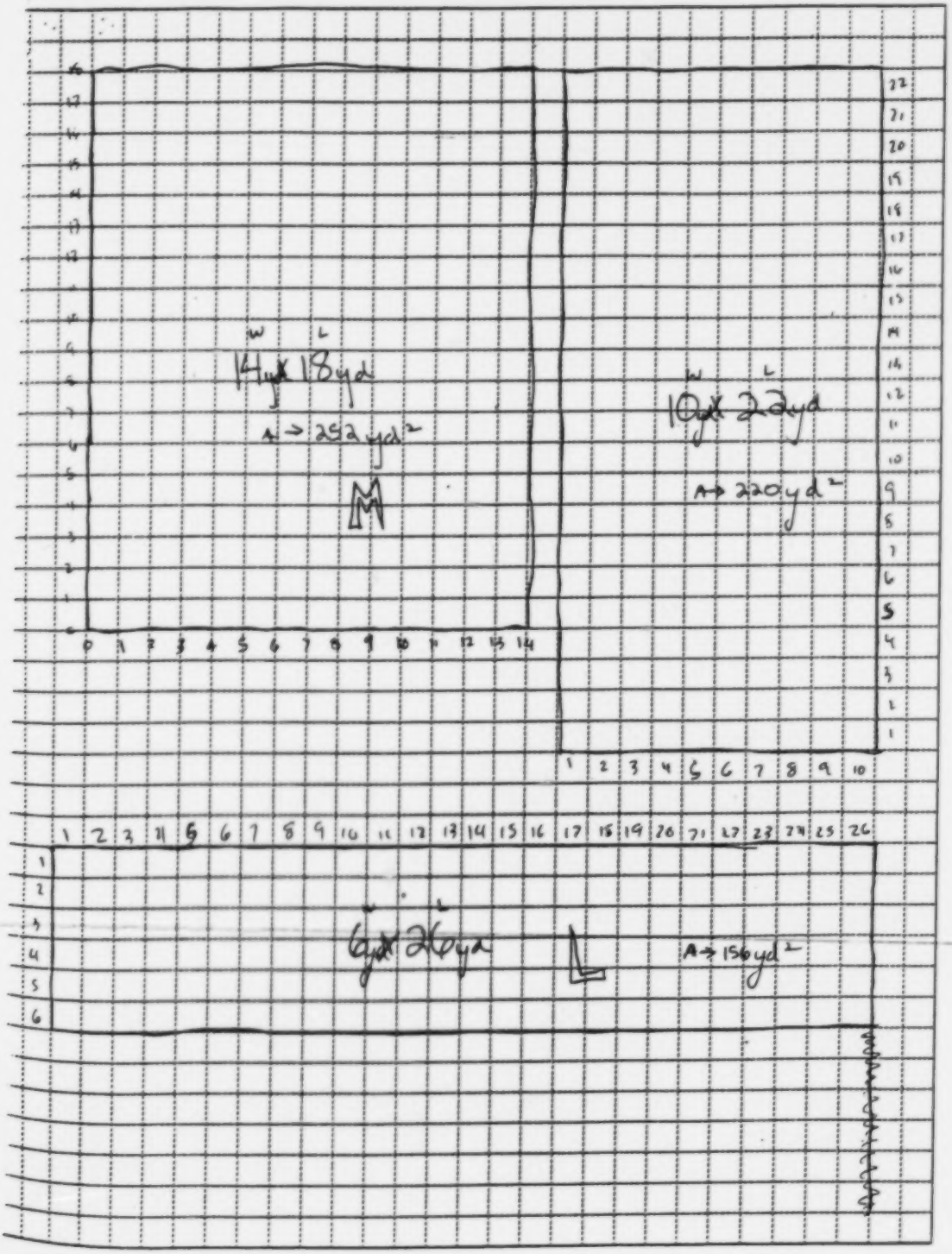
Instructions for Fencing the Dog

You have 64 yards of fencing to enclose a **rectangular** pen for your large dog, Max.

- Draw and label the dimensions of three possible **rectangular** pen designs on the graph paper provided. Each design should use all 64 yards of the fencing.
- Of the three pens you have drawn, mark the one with the least amount of play space with an "L," and the one with the most play space with an "M."



Fencing the Dog: Student Example A



- **Explain if it is possible to make any pens with larger or smaller play spaces than the ones you have designed. Support your answer with mathematical evidence.**

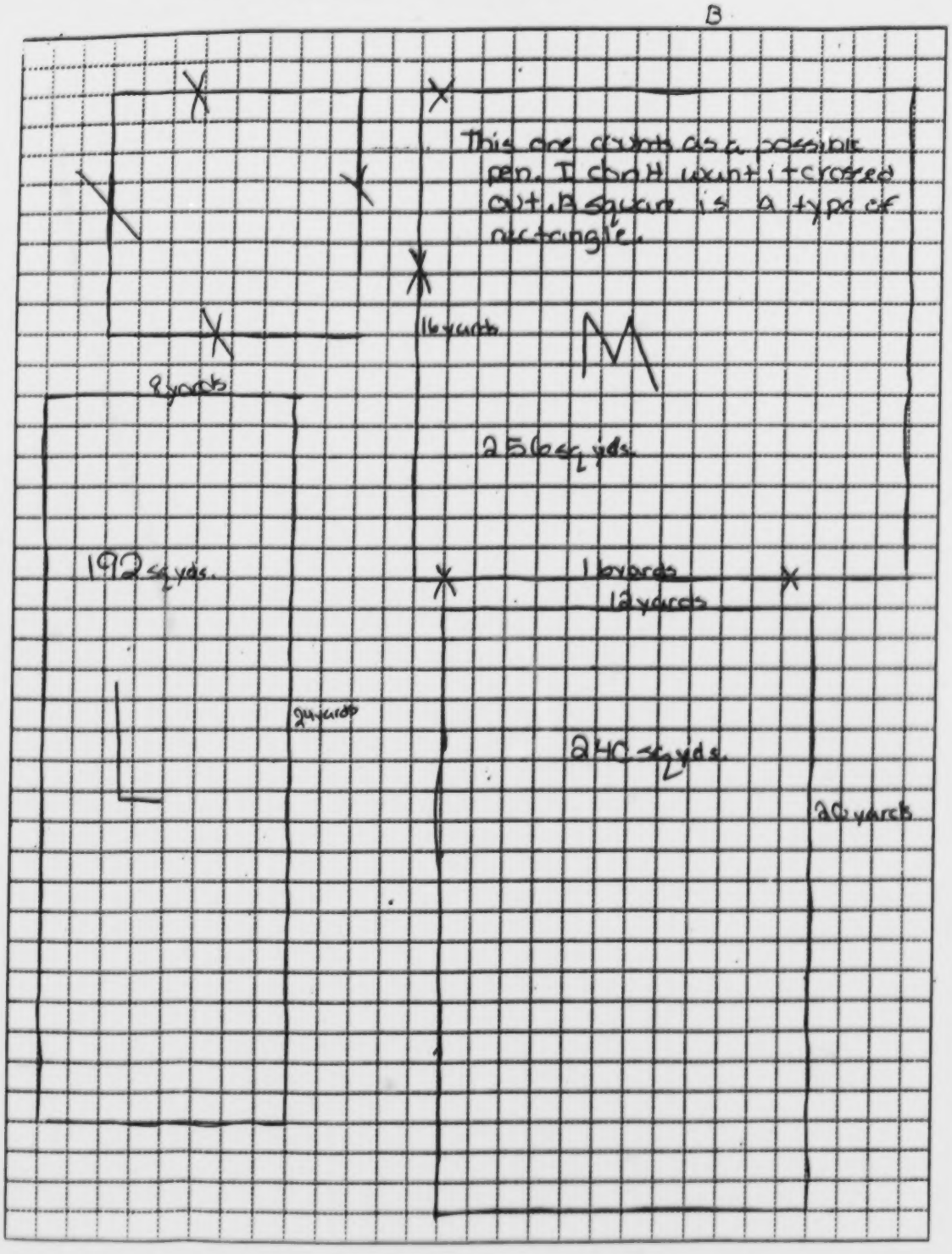
You can always change the sizes of the pens. But, if the dimensions are different, you'll get a different area. A short fat pen will have more open space than a long skinny one for running in. When you multiply the length times the width to get the area, a long thin pen will have one small number and one large one to multiply. That won't go as high as two medium to large sized numbers. Look at my areas on the drawings.

- **What is the biggest possible pen that can be made—the one that allows Max the most play space?**

  Explain how you know that this pen has the most area.
  Support your answer with mathematical evidence.

A 16yd x 16yd is the pen with the most area. It has an area of 256 yd^2. The largest one I drew was almost a square. It's area was 255 yd^2. Next bigger was a 15 x 17, which gave me 255 yd^2. It seems, the closer to square-shape, the larger the area. Sixteen '16's are more than fifteen '17's, which is more than fourteen '18's.

Fencing the Dog: Student Example B



• Explain if it is possible to make any pens with larger or smaller play spaces than the ones you have designed. Support your answer with mathematical evidence.

You could not possibly make it larger than the 16x16 pen. Because it is a rectangle, the pen with equal sides would have the most area. Yet, if your fence was an octagon you could make the area bigger. You could make the ~~triangle~~ rectangle smaller than what I have by making the dimensions even more uneven. It goes down in area each time. A 16x16 = 256 yd², 18 x 14 = 252 yd², 20 x 12 = 240 sq yd my smallest 8 x 24 = 192 yd², even smaller 4 x 28 = 112 sq yd.

• What is the biggest possible pen that can be made—the one that allows Max the most play space?

Explain how you know that this pen has the most area.
Support your answer with mathematical evidence.

The biggest possible play area is the square 16 x 16 yd. It gives him 256 sq yd. of play area. I know the pen has the most area, because to get area, you multiply the length and width. With the other 2 play areas, I did not get as many square yards in my area which means that they are smaller.

16 x 16 = 256 yd²
20 x 12 = 240 yd²
8 x 24 = 192 yd²

23

Aspects of Proficient Responses: Fencing the Dog

Responses vary widely in the three dog pens that students chose to model, and student communication of their model and its mathematical justification also vary. Students gave fairly consistent responses to the section asking for the dimensions of the pen with the greatest area. Counter examples or other mathematical explanations, however, are sketchy or missing.

In a proficient response, the student used appropriate mathematics to show understanding of the concepts of area and perimeter, showed the calculations used, and structured an explanation to the questions relating perimeter and area in a logical way. The mathematical problem-solving techniques demonstrated satisfy all the conditions of the problem and include examples and counter examples where necessary to support the arguments made about the areas and perimeters of the possible pens. The mathematical communication gives evidence of understanding of how perimeter and area are calculated and how they relate to each other (Student Examples A and B).

Science Performance Assessment

Science is a way of learning as well as a body of information. It is as important for students to be able to apply the skills of science to solve science problems as it is for them to understand the concepts and ideas of science. Performance assessment provides students with the opportunity to demonstrate that they can apply the skills of science inquiry, such as designing an investigation or controlling variables, to solve science problems, and to communicate their solutions and thinking processes.

The performance assessment will not cover all important science content, nor will it assess the fullness of a student's understanding of the history and culture of science.

Instrument Description

All science performance assessment instruments in the Wisconsin Student Assessment System (WSAS) meet the spirit of the emerging National Standards in Science Education. In addition, the assessments are aligned with Wisconsin's Learner Goals, the Wisconsin Learner Outcomes, and content guidelines outlined in the DPI's *A Guide to Curriculum Planning in Science*.

Specifically, the science instruments assess goals two and three of Wisconsin's Learner Goals:

2. Develop thinking and communication processes.
3. Apply knowledge and processes.

Science performance assessment instruments and tasks in WSAS require students to apply their knowledge of science in problem solving and to use the skills, processes, and strategies articulated in 13 of the 17 Wisconsin Learner Outcomes (see Figure 4). The reasoning skills and processes needed for successful completion of the science performance assessments are taken from core concepts in the life, earth/space, and physical sciences. Because these science inquiry concepts and skills are complex, students need many inquiry and problem-solving opportunities prior to the assessment. (Figure 5 lists some of the specific skills, and Figure 6 lists the core science concepts.)

Wisconsin's science performance assessment is designed to assess a student's ability to solve science problems. Students are asked to apply their science knowledge, understanding, and skills to solve science problems and to communicate their solutions. Students must show evidence of logical science problem solving. No matter what problem-solving method a student uses, it must be based on the evaluation and use of evidence, data, and information that is scientific in nature and relevant to the problem.

To aid in the construction, scoring, and reporting of results of the performance assessment, science problem solving is subdivided into four overlapping components: problem posing, problem approaches, problem solutions, and communication.

- **Problem posing:** Students must show evidence of "seeing the world scientifically." They should be able to distinguish problems that are scientific in nature and pose science problems from a variety of real world and hypothetical situations.

Students should show evidence of being able to evaluate information and decide if the information is relevant to the problem. Other evidence of problem posing may include control-

ling variables, making or revising a hypothesis, making predictions, describing patterns, using models, and applying past experience and previously learned knowledge.

- **Problem approaches:** Students must be able to design and/or perform an experiment. They must be able to modify an experimental technique or design to obtain relevant data. Evidence might include controlling variables in an experiment, collecting appropriate information, and recording and organizing observations. Students should be able to use multiple problem-solving strategies as appropriate to the problem, and they should revise their approaches when new evidence warrants. They should be able to describe additional information that may be required to solve a problem and describe how that information might be obtained. It is possible for a student to explain how to solve a problem without completing a "correct" solution.

- **Problem solutions:** Students should be able to suggest reasonable solutions for the problem posed. The solutions must be consistent with the procedures the student followed and justified with specific evidence produced in the inquiry. Evidence may include carrying out different approaches to the same problem and comparing the results, using similar procedures to solve similar problems, or using various approaches to solve a complex problem. Students should be able to evaluate the data and results used to support a position, and they should be able to use data and results to critique and revise procedures.

- **Communication:** One of the basic tenets of science is that it is self-correcting. This is accomplished by clearly communicating to others the problem, procedures, interpretations, and thinking pathways used and by justifying the conclusion using data and scientific analyses. Communication about a scientific investigation must contain all the information to allow other people to repeat the investigation. Written communication of the problem, procedures, results, and thinking processes should include data, charts, graphs, drawings, diagrams, and other findings as appropriate as well as symbolic representations and vocabulary that help to communicate scientific information efficiently.

Each performance assessment instrument or task describes a situation in a specific context and requires the student to combine information derived from the problem with the student's prior knowledge of science content and inquiry skills to find a solution. Each student produces the evidence of his or her own performance through designing and carrying out experiments, producing scientific data, analyzing and drawing conclusions, and applying appropriate science information and the use of appropriate written communication.

Wisconsin Learner Outcomes as Reflected in Science

Wisconsin Learner Outcomes	Science Outcomes
1. Identify, develop, evaluate, and apply criteria to ideas, products, and performances of one's self or others.	1. Identify, develop, evaluate, and apply scientific criteria to scientific ideas, products, and performances of one's self or others.
2. Revise a product, performance, system, and idea in response to relevant information.	2. Critically analyze and/or revise a product, performance, system, or idea that is scientific in nature in response to relevant information.
3. Make informed decisions by examining options and anticipating consequences of actions.	3. Make informed decisions about scientific problems by examining options and anticipating consequences of actions.
4. Achieve desired results by interpreting and executing instructions, plans, models, and diagrams.	4. Achieve a result by interpreting and executing instructions, plans, models, and diagrams, using appropriate equipment and technology.
5. Recognize and devise systems and describe their interdependence.	5. Recognize and devise scientific systems and describe their interdependence.
7. Respond to the aesthetic and intellectual aspects of an event, performance, and product.	7. Respond to the aesthetic and intellectual aspects of an event, performance, and product.
8. Transfer learning from one context to another.	8. Transfer learning from one context to another, and be able to apply science concepts and skills whenever they are applicable.
9. Recognize, define, and solve a problem.	9. Recognize, define, and solve a science problem and communicate the strategies used in appropriate scientific fashion.
11. Work effectively in groups to accomplish a goal.	11. Work effectively in groups to accomplish a goal.
12. Defend a position by combining information from multiple sources.	12. Support a position by integrating scientific evidence and applicable information from multiple sources.

Wisconsin Learner Outcomes (cont.)	Science Outcomes (cont.)
13. Develop and test a hypothesis.	13. Develop and test a hypothesis.
14. Recognize when a need for specific information exists and demonstrate the ability to locate, evaluate, and use the relevant information.	14. Recognize when a need for specific information exists and demonstrate the ability to locate, evaluate, and focus that information and/or be able to design an investigation that will provide the needed information.
15. Conceive of places, times, and conditions different from one's own.	15. Conceive of places, times, and conditions different from one's own.

Science Skills

Performance assessments require students to show their ability to solve scientific problems. The following scientific skills are essential to scientific problem solving.

- **Observation:** Observation is the first step in any science-related problem. Students must learn to observe with an open mind and to utilize all of their senses. Scientific observation is not an end in itself; observation is always done with a purpose. An observer must pay attention to relevant data, recognize patterns and outcomes, and connect cause and effect.

- **Grouping or Classifying:** Students need to group objects, ideas and phenomena into categories in order to manage large amounts of information and to understand relationships. This skill begins with grouping objects by consistent use of some criteria and progresses to more complex multi-leveled hierarchies of classification which show complex relationships between objects, ideas, or phenomena.

- **Measuring:** Measuring in a large sense, is the only means of comparison. It is much more than learning to use a ruler and a balance. All measurements are comparisons of something to a known standard; so part of this skill involves the selection of the standard and the means of measuring that will yield information that is meaningful.

- **Inferring/Predicting** (Hypothesis formation): Making inferences is a way of connecting observations together. Observations and inferences may be closely related but they are not the same and students must learn to distinguish between them. Making predictions (forming a hypothesis) is much more than making a wild guess about something. Scientifically literate persons make predictions that are the result of logical thinking and formed on a foundation of evidence, experiences, observations, and inferences made under known circumstances. Students must learn how to control variables, judge the reliability of observations and measurement, and make logical inferences, in order to make the most accurate predictions.

- **Organizational skills:** Good organizational skills are important to all educational endeavors (as well as to most lifetime activities), but they are essential to science. This is not to say that good science is always neat and tidy but conclusions drawn on data that is poorly organized and inaccurately recorded cannot be reliable.

Each skill is applicable to all educational levels and to all areas of science content. These skills are often taught separately and when taken individually may appear to be simple. No one skill however, is ever applied in isolation from the others. In fact, the solution to real-world scientific problems, no matter how simple, require the application of *all* of these skills. It is this complex application of a combination of the skills of science that result in scientific problem solving. It is to be expected that any assessment *instrument* will assess a student's capabilities in most of these basic scientific skills.

Figure 6

Science Content

It is obvious that science problem-solving must be assessed with some specific content and in some context. The content of each assessment instrument will be drawn from a variety of scientific disciplines, including fundamental scientific concepts from life, physical, and earth/space science. The context of the performances will be realistic, but not necessarily real, and interesting and engaging for students. Each performance will model good science instructional practices. Whenever possible and practical, students will be asked to use equipment to perform experiments and gather their own data.

The following *examples* of fundamental concepts in each field are taken from several sources, including the Department of Public Instruction's *A Guide to Curriculum Planning in Science*, *Benchmarks for Science Literacy* by the American Association for the Advancement of Science (AAAS), Science for All Americans by the AAAS, and *Science Matters, Achieving Science Literacy* by Robert M. Hazen and James Trefil. This list of examples is not exhaustive.

Earth/Space Science

- Forces and energy in the Earth cause change.
- The Earth system includes geochemical processes and cycles.
- The Earth's history has changed and is changing.
- The Earth is one part of the universe, and stars change over time.

Life Science

- Life comes from other life.
- Organisms, populations, and ecosystems show diversity and adaptations.
- Living things evolve.
- Matter and energy are related to the organization of living systems.
- Cells are the unit of structure and function of living things.

Physical Science

- Atoms make up all matter.
- Matter and energy interact.
- Electricity and magnetism are two parts of the same force.
- The way a material behaves depends on how its atoms are arranged.
- One set of laws describes all motion.
- Energy and mass are conserved.

Scorers use a range of benchmark papers that illustrate performances for each score category in the assessment. The various benchmark papers in each category reflect the fact that no two papers—even two advanced responses—are identical because students arrive at their answers in different ways. A five-point scale (plus a not scorable category) will be used in all parts of the performance assessment.

Description of Score Categories

- **Advanced Response:** This response constitutes a distinguished performance, demonstrating exceptional application of all essential science skills and concepts on this activity.
- **Proficient Response:** The student's performance is fully acceptable. It is conceptually and mechanically complete and addresses all parts of the question or task which has been presented. The response shows full application of appropriate knowledge and skills, and uses methods or techniques of communication that are appropriate to the subject area and the task.
- **Nearly Proficient Response:** It addresses some of the skills and concepts essential to science, but there is evidence of some major misconception or the application of inappropriate knowledge.
- **Minimal Response:** While the response may contain evidence of some skills and concepts of science, it contains major misconceptions of applicable science and little ability to apply the correct skills.
- **Attempted Response:** There is little evidence that the response is an attempt to address the task.
- **Not Scorable:** The paper is blank, or the response is irrelevant or unreadable.

Sample Task: Temperature of Water in Cups

This task has two parts. First, each student is asked to carry out an experiment to obtain data to evaluate a given hypothesis. Second, the student is asked to write a hypothesis and design an investigation to test it.

Teachers are instructed to make sure that the temperature of the hot water is about 20 degrees Celsius above room temperature and that the cold water is about 20 degrees Celsius below room temperature. The ice water should be allowed to cool to its lowest point before beginning. There must be enough ice in the ice water cup to insure that there will be a great deal left in the cup when the students have finished. Each student records his or her own temperature readings.

This task requires the science skills of using a thermometer, recording information, making a graph, evaluating a hypothesis, and drawing a conclusion based on information from an experiment.

Wisconsin Learner Outcomes addressed

- Wisconsin Learner Outcome 4: Achieve desired results by interpreting and executing instructions, plans, models, and diagrams.
- Science Outcome 4: Achieve a result by interpreting and executing instructions, plans, models, and diagrams using appropriate equipment and technology.

In the Temperature of Water in Cups task, the students are asked to use equipment to obtain information about what happens to the temperature of water and then use that information to achieve a result.

- Wisconsin Learner Outcome 13: Develop and test a hypothesis.
- Science Outcome 13: Develop and test a hypothesis.

The students are asked to evaluate a hypothesis in the first part of the investigation and are asked to write and test a hypothesis in the second part of the activity.

Temperature of Water in Cups: Student Example A

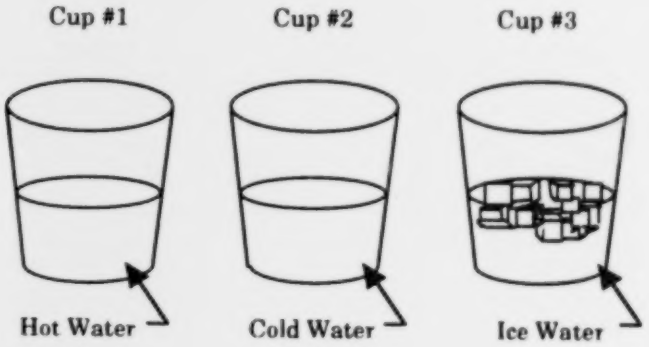
Here are two experiments about temperature change in water.
The first experiment is designed for you.
The second experiment you will design and carry out yourself.

Experiment 1: Temperature Change of Water in Paper Cups

Hypothesis: The temperature of the hot water will change more than the temperature of the cold water or ice water in the same amount of time.

Procedure:

1. Fill the cups with the same amount of water.
   Fill one cup with hot water, the second with cold water, and the third with ice water.
   Label the cups: 1—Hot
   2—Cold
   3—Ice



2. Use a thermometer to find the temperature of the air in your classroom. Write this temperature on the next page.

3. Using the thermometer, carefully stir the water in a cup and take its temperature. Keep the thermometer in the water about 30 seconds before taking the temperature reading. Repeat the procedure for each of the three cups and record your data on the next page.

4. Record the water temperature of the cups about every three (3) minutes. Continue until you have taken five (5) more readings for the water in each cup.

Data and Results:

Do your best work.
Be sure to record all of your data in an organized way.
Use graph paper to present your results.

Room temp. 25° degrees celsius

	Hot	Cold	Ice water
1	37°	13°	2°
2	34°	14°	2°
3	32°	15°	1°
4	30°	18°	2°
5	30°	20°	2°

Conclusion:

Here is the original hypothesis:

The temperature of the hot water will change more than the temperature of the ice water or cold water in the same amount of time.

Explain how your data supports or does not support the original hypothesis:

I predicted that the water (both the above temp. and the below temp.) would even out to room temperature. The hot water gradually went from 37 try #1 to 30° in try 5 which is closer to room. The cold water was changing from 13° to 20 in try 5 warming up to room temp. the ice was not the same. It stayed the same except for try 3 were it changed 1° but went back to 2° for the rest 2 trials. the ice was melting and keeping the water cool.

the hypothesis says that hot water will cool off faster than cold water will warm up but I don't think this is true because the hot water in my experiment seemed to cool off about 1 or 2 degrees every time except for the last time and the cold water seemed to change about the same amount each time except for one time it changed 3° the rest changed 1 or 2 degrees. It seems to me that they change about the same except when there is ice in the cup then the temp. doesn't hardly change at all because the ice is melting.

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Temp. of water • Celcius

50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0

1 2 3 1 1 2 3 1 2 3 1 2 3 1 2 3

① Cup #'s ② ③ ④ ⑤

Temp. changes of Water in Paper cups

Experiment 2: Design Your Experiment.

Plan experiment 2 to investigate how the material a cup is made of affects the temperature change in water. You will have one thermometer.

Select the materials you plan to use from the list below by circling the item(s) and writing in the number of each you will need for the experiment.

Your teacher must approve your materials list before beginning the experiment.

Materials List:

	Amount Needed		Amount Needed
Balance	____	Ruler	____
Paper Cup	1	Hot Water	3
Glass Container	1	Cold Water	3
Styrofoam Cup	1	Ice Water	3
Graduated Cylinder or Measuring Cup	____	Thermometer	1

Experiment 2 Title:

How the water is effected by meterials

Write your hypothesis: I think the styrofoam will keep the same temperature both times measured. The temperature in the glass container will stay a little hot the paper will stay the most.

Procedure:

All your procedures and diagrams should be clear enough for someone else to follow.

Tell or show what you will do in your experiment.

I will test each type of water in each type of cup. to see what happens to the temperature. Each container will have water in it three times.

1. Put ice water in the glass, cold in the paper, and hot in the styrofoam. Measure temp. immediately and record. Wait 3-min measure again-Record.

2. Switch water to hot in the glass, ice in the paper cup, cold in the styrofoam. Measure temp immediately and record. Wait 3 minutes then take temp. again and record.

3. Switch water again. to hot in paper, cold in glass and ice in styrofoam. Measure temp. immediately and after 3 minutes. Record.

Data and Results:

Do your best work.
Record your data in an organized way.
Use graph paper to present your results.

Room temp = 19° Centigrade

	Styrofoam	Paper	glass
Hot #1	40°	40°	40°
Hot #2	39°	35°	37°
Cold #1	5°	5°	5°
Cold #2	5°	9°	7°
ice #1	1°	1°	1°
ice #2	0°	1°	0°

Review your procedure.
Change or add to your procedure to show exactly what you did in experiment 2.
Show your work on the procedure page.

Conclusion:

Reread your hypothesis for experiment 2.

Explain how your data supports or does not support your hypothesis.

My hypothesis is supported pretty good. In the styrofoam the water temp did not change much only 1°C in the hot and second as degrees in the cold so as my hypothesis said it stayed the same in the styrofoam. The glass warmed and the temp. changed a little bit in all of the cups. The paper warmed and it changed more than the glass. The paper cup in this experiment was about the same as the one we did yesterday. The ice water did not change much at all because the ice was melting and keeping the water cold just like yesterday too.

What changes could you make to improve your experiment?

If I was going to do this again I would take the temperature longer and I would have more cups so I could do all the types of water at once and not have to keep changing the water in the cups.

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How insulation affected by materials graph

Temp of water degrees celsius

40

50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0

Hot styrofoam 1 2 | Paper 1 2 | glass 1 2 | Cold styrofoam 1 2 | Paper 1 2 | glass 1 2 | Ice styrofoam 1 2 | Paper 1 2 | glass 1 2

Temperature of Water in Cups: Student Example B

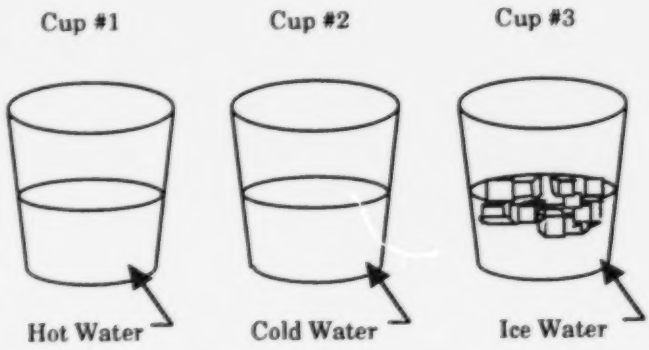
Here are two experiments about temperature change in water.
The first experiment is designed for you.
The second experiment you will design and carry out yourself.

Experiment 1: Temperature Change of Water in Paper Cups

Hypothesis: The temperature of the hot water will change more than the temperature of the cold water or ice water in the same amount of time.

Procedure:

1. Fill the cups with the same amount of water.
   Fill one cup with hot water, the second with cold water, and the third with ice water.
   Label the cups: 1—Hot
   2—Cold
   3—Ice



2. Use a thermometer to find the temperature of the air in your classroom. Write this temperature on the next page.

3. Using the thermometer, carefully stir the water in a cup and take its temperature. Keep the thermometer in the water about 30 seconds before taking the temperature reading. Repeat the procedure for each of the three cups and record your data on the next page.

4. Record the water temperature of the cups about every three (3) minutes. Continue until you have taken five (5) more readings for the water in each cup.

Data and Results:

Do your best work.
Be sure to record all of your data in an organized way.
Use graph paper to present your results.

Room temp. 23

Cup 1 45
Cup 2 9
Cup 3 3

	Hot	Cold	Ice
1	45	9	3
2	44	10	3
3	42	12	4
4	41	13	3
5	40	14	2

$5\overline{)5}$ 1° ave. change

$5\overline{)5}$ 1° ave. change

$5\overline{)1}$ .2° ave. change

Conclusion:

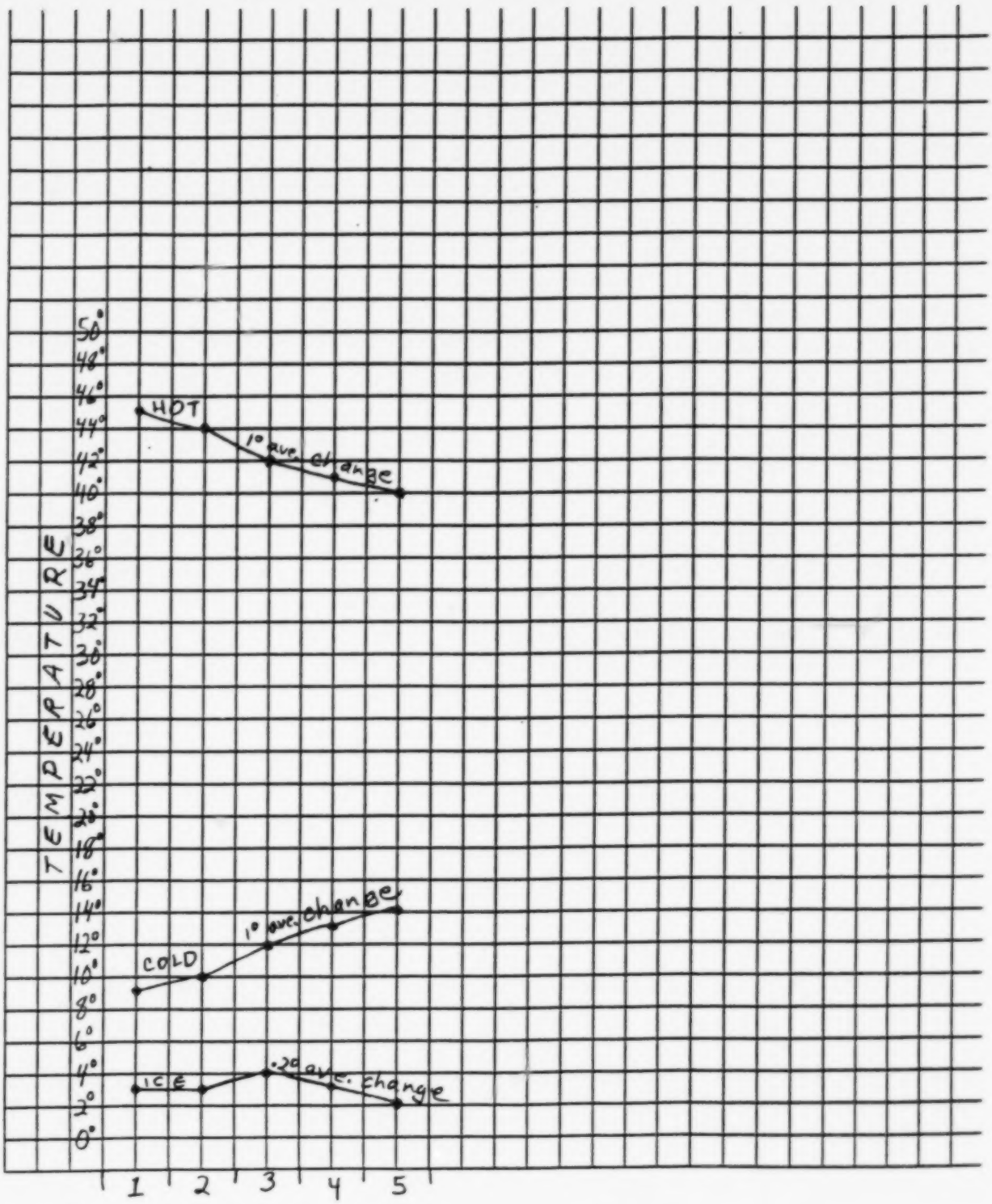
Here is the original hypothesis:

The temperature of the hot water will change more than the temperature of the ice water or cold water in the same amount of time.

Explain how your data supports or does not support the original hypothesis:

I find that the paper is a good insulator. There wasn't a big difference in the speed of temperature decline or rise. There wasn't enough to back up the hypothesis.

Temperature of Water in Paper Cups



Experiment 2: Design Your Experiment.

Plan experiment 2 to investigate how the material a cup is made of affects the temperature change in water. You will have one thermometer.

Select the materials you plan to use from the list below by circling the item(s) and writing in the number of each you will need for the experiment.

Your teacher must approve your materials list before beginning the experiment.

Materials List:

	Amount Needed		Amount Needed
Balance	____	Ruler	____
Paper Cup	1	Hot Water	3
Glass Container	1	Cold Water	____
Styrofoam Cup	1	Ice Water	____
Graduated Cylinder or Measuring Cup	____	Thermometer	1

Experiment 2 Title:

The Better Insulator

Write your hypothesis: The styrofoam will be the best insulator followed by paper then glass.

Procedure:

All your procedures and diagrams should be clear enough for someone else to follow.

Tell or show what you will do in your experiment.

I have 3 containers filled with hot water – Glass, Paper, and Styrofoam. Every 4 minutes I will take the temperature. 6 different times

Data and Results:

Do your best work.
Record your data in an organized way.
Use graph paper to present your results.

	Sty.	Paper	Glass
1	39	39	39
2	40	38	36
3	40	36	34
4	38	35	32
5	37	33	30
6	36	32	28
	.5 ave. change	1.15 ave. change	1.83 ave. change
	$6\overline{)3}$	$6\overline{)7}$	$6\overline{)11}$

Review your procedure.
Change or add to your procedure to show exactly what you did in experiment 2.
Show your work on the procedure page.

Conclusion:

Reread your hypothesis for experiment 2.

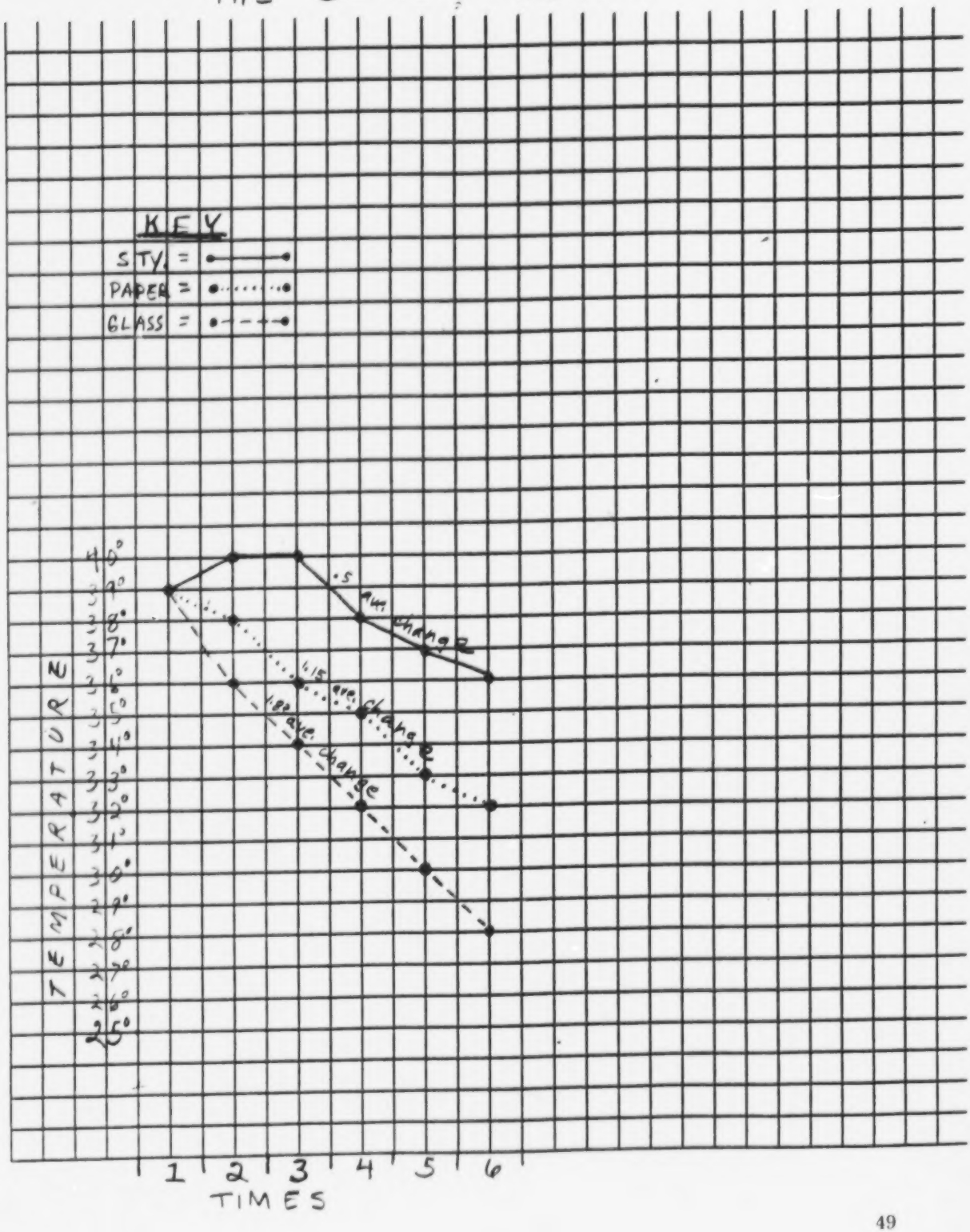
Explain how your data supports or does not support your hypothesis.

The results support my hypothesis. The water in the styrofoam changed about 3 degrees from the start over the time but it went up one degree at the start so it might have changed 4 degrees. The paper changed 7 degrees over the time and the glass changed 11 degrees over the time. The styrofoam is a better insulator. Both the glass and the paper started to go down right from the start but the styrofoam went up one degree to start and then started going down. The glass cooled off the most then the paper cup and then the styrofoam cup. If you let them set though they would all cool down to the same temperature.

What changes could you make to improve your experiment?

I would probably do the experiment over a longer time and maybe use cold water next time. I am not sure why the styrofoam went up one degree. Maybe the thermometer was wrong.

The Better Insulator



Aspects of Proficient Responses: Temperature of Water in Cups

Student A's performance shows that the student is able to solve problems scientifically by following the procedure, collecting and recording data in an organized manner, and using the data to come to a conclusion. The data table includes the units of measurement, labels, and shows the sequence of the readings.

The solution presented in the written conclusions communicates clearly the student's understanding of the relationship between the temperature changes of the water to the ambient room temperature. The conclusions are specifically supported by the data collected. The student used the data that was collected to evaluate the given hypothesis and came to a conclusion that is supported by the data.

The second experiment tests the effect of the cups' material on the temperature change of water. The plan, hypothesis, and procedure are clearly communicated. Data is again recorded in an organized manner. The student writes descriptively about the temperature changes under each condition and compares the results from the first experiment to the results obtained in the second experiment. The student compares the results in a line graph. The student identifies at least one key aspect that would improve the experiment.

The student notes that the ice and water mixture does not behave in the same way as the other water samples and suggests a possible reason.

Student B's response shows the variety possible in these science performance assessments. This student does not see the temperature changes as significantly different from one another and thus concludes that there is not sufficient evidence to confirm the hypothesis. The student has made an attempt to compare the rate of temperature change for each type of water by dividing the difference between the beginning and final temperatures by the five timed periods.

In the second experiment, the student tests the three different containers with hot water to see which is the better insulator. The plan and procedures are short but contain all the essential information. The data and results are clearly labeled and easy to follow. Again, the comparison of the temperature change and the time was used to show an average change. The student's conclusion is consistent with the information collected.

The student notes at least one way of improving the experiment and mentions the temperature rise in the Styrofoam cup as being something that was not expected and needed to be explained. The graph is clearly labeled and is correct.

Language Arts Performance Assessment

Language arts is a broad discipline that includes the communication skills of speaking, listening, reading, and writing as well as language science (for example, grammar), literary history and criticism, and some skills in communication technology. Because most educators believe that local districts should determine the specific literature its students study and because research shows that knowledge of language science does not improve a student's use of language, a statewide assessment will usually focus on the communicative aspects of language.

Until recently, large scale, high stakes assessments have nearly always been multiple-choice tests. Their relative economy and ease of administration and scoring made them extremely attractive. Recently, however, educators have come to understand the need for students to be able to apply what they are learning. Communicative competency is now thought essential for learning in all disciplines. Traditional tests need to be supplemented by assessments that require students to "do" reading, writing, speaking, and listening rather than simply answer questions about these skills. Students must be able to show that they can practice the skills themselves rather than simply edit the words of others. A range of assessment types, such as planned for by the Wisconsin Student Assessment System (WSAS), will give a much clearer picture of what students have learned.

Instrument Description

Language arts communication performance assessments in the Wisconsin Student Assessment System are administered at grades four, eight, and ten. Each instrument is a self-contained unit and requires approximately five 45- to 50-minute class periods within a six-week timeframe. Each instrument is built around a student's original communication experience that requires a blend of reading, writing, speaking, and listening. Each addresses a subject or theme of wide interest and/or familiarity to the students. All necessary materials are included.

Students utilize their prior knowledge and comprehension strategies as they read passages, listen to audio tapes or oral readings, and/or view video tapes of various kinds and respond to them. They participate in group discussions, monitor their understanding, and record their responses, reflections, and ideas. Finally, they produce a written centerpiece that must bear some relationship to the instrument's subject or theme. A copy of each student's centerpiece remains in the student's portfolio in the school district for use as instructional materials with that particular student.

All language arts performance assessments in the WSAS address the first three Wisconsin Learner Goals, a selection of the 17 Wisconsin Learner Outcomes (see Figure 7), and the Wisconsin Language Arts Content Guidelines (see Figure 8). The content guidelines are taken from several sources, including the Department of Public Instruction's *A Guide to Curriculum Planning in English Language Arts* and *A Guide to Curriculum Planning in Reading*, the Wisconsin Technical College System Board's *Preparing for a Wisconsin Technical College Associate Degree Program: Communication Knowledge Base That Enables Students to do Educational Tasks*, the University of Wisconsin System's *Basic Competencies in English Composition for College Bound and New College Students*, and the UW System's *Competency-Based Admissions Pilot Program*.

Figure 7

Wisconsin Learner Outcomes as Reflected in Language Arts

Wisconsin Learner Outcomes	Language Arts Outcomes
1. Identify, develop, evaluate, and apply criteria to ideas, products, and performances of one's self or others.	1. Be able to evaluate the credibility, quality, and intent of written and oral performances.
2. Revise a product, performance, system, and idea in response to relevant information.	2. Revise and improve one's writing and oral performances after acquiring additional information and in response to feedback from others.
3. Make informed decisions by examining options and anticipating consequences of actions.	3. Choose topics and communication approaches by considering the intended audience, purpose, and context for writing or speaking.
4. Achieve desired results by interpreting and executing instructions, plans, models, and diagrams.	4. Directly address writing and speaking instructions in assessment, accurately follow instructions for assigned work, and devise and use organizing tools for pre-reading and pre-writing.
5. Recognize and devise systems and describe their interdependence.	5. Recognize language and its subdivisions as systems and understand their impact on other systems (social, political, etc.)
6. Create a quality product, process, and performance to meet a need.	6. Produce effective oral and written texts and performances for a variety of purposes including imagining, informing, persuading, expressing feelings, and functioning in social situations.
7. Respond to the aesthetic and intellectual aspects of an event, performance, and product.	7. Respond intellectually and aesthetically to literature and literary performances (plays, readings, debates) by producing artistic work, preparing a critical response, or analyzing the work for individual purposes.
8. Transfer learning from one context to another.	8. Transfer ideas from one literary form to another, move from oral to written expression of ideas or vice versa, and apply the lessons of literature to one's own situation.

Wisconsin Learner Outcomes (cont.)	Language Arts Outcomes (cont.)
9. Recognize, define, and solve a problem.	9. Identify communication problems and analyze and solve them by applying knowledge of strategic language use. Be able to recognize one's weaknesses in reading, writing, speaking, and listening and apply strategies to improve them.
10. Recognize and communicate one's strategies for accomplishing objectives.	10. Be able to identify one's strengths in writing, speaking, acting, listening, and reading and explain them to others.
11. Work effectively in groups to accomplish a goal.	11. Be able to work with others as part of a debate team, play cast, speech panel, discussion group, etc.
12. Defend a position by combining information from multiple sources.	12. Be able to use all available resources to defend a literary interpretation, an important belief, a strategy for learning in various oral (debate, persuasive speech, discussion) and written forms.
13. Develop and test a hypothesis.	13. Develop and justify a literary interpretation, the probable result of a rhetorical choice, or the likelihood of developments within a literary work.
14. Recognize when a need for specific information exists and demonstrate the ability to locate, evaluate, and use the relevant information.	14. Be able to use language reference works (dictionaries, thesauruses, handbooks) and literary reference works (data bases, anthologies) to find supporting material and editing help for speeches and writing.
15. Conceive of places, times, and conditions different from one's own.	15. Put one's self into literary works in order to better understand the context with which they deal and create the environment for a story that will best satisfy the purpose one has for writing it.
16. Identify personal interests and goals and pursue them.	16. Find topics about which to write and literary works to read that will stimulate pleasure in learning and growing.
17. Recognize the influence of diverse cultural perspectives on human thought and behavior.	17. Read widely in the literary heritage of various cultures to better understand the nature of their worlds and the effects that a blending of cultures has on our own.

■ Figure 8

Wisconsin Language Arts Content Guidelines

These content guidelines are taken from several sources, including the Department of Public Instruction's *A Guide to Curriculum Planning in English Language Arts* and *A Guide to Curriculum Planning in Reading,* the Wisconsin Technical College System Board's *Preparing for a Wisconsin Technical College Associate Degree Program: Communication Knowledge Base That Enables Students to Do Educational Tasks,* the University of Wisconsin System's *Basic Competencies in English Composition for College Bound and New College Students,* and the UW System's *Competency-Based Admissions Pilot Program.*

1. Express ideas clearly in writing
- using standard English (spelling, punctuation, usage, diction, vocabulary, organization, sentence structure, and format).
- for a variety of purposes (informative, expressive, imaginative, persuasive, and technical/professional).
- for a variety of audiences (single person, specialized group, general audience, future record).
- using the writing process (pre-writing, drafting, revision, editing, publishing).

2. Make sense through reading and evaluating a variety of written materials at an appropriate developmental level
- integrating new material with prior knowledge.
- monitoring understanding of the material.
- applying appropriate reading skills and strategies.

3. Make sense through viewing, listening to, and evaluating a variety of speakers and/or performers in formal and informal situations by
- integrating new material with prior knowledge.
- understanding the impact of verbal and nonverbal messages.
- monitoring their understanding of material.

4. Obtain and responsibly use information from a variety of sources, including
- print resources (e.g., reference books, card catalogs (electronic or card), periodical guides, newspaper indexes).
- non-print resources (e.g., tapes, recordings, computer data bases, computer bulletin boards).
- interviews and surveys.

5. Develop an informed and critical understanding of the nature of mass media, the techniques used by them, and the impact of these techniques.

6. Speak effectively
- for a number of purposes (informing, expressing opinions and feelings, performing, persuading, and being courteous).
- for a number of audiences (individual, small group, large group, radio or TV).
- using appropriate vocal and physical techniques (articulation, pronunciation, rate, intensity, volume, pauses, eye-contact, facial expression, and gestures).

7. Understand the nature and function of language as a system that
- includes sounds, units of meaning (words, word endings), patterns of organization (phrases,

sentences, paragraphs).
- varies across ethnic and geographic boundaries.
- has various, equally complex dialects based on geography and/or culture.
- is subject to social privileging of certain dialects.
- usually has a spoken and a written form, each with its own set of arbitrary conventions of usage, mechanics, and form.

8. Demonstrate a broad knowledge of literature that
- includes a range of types (e.g., poetry, novels, essays, drama) and media (film, television, etc.).
- includes various cultures (e.g., American, English, world).
- makes them culturally literate.
- gives insight into themselves and others.
- includes recognition of literary techniques (e.g., use of figurative language, voice, tone, style)..

9. Support their own beliefs effectively and responsibly and evaluate the arguments of others by understanding
- logic.
- evidence.
- propaganda devices.

10. Use language technologies, such as
- word processors.
- computer reference software, including
— spell checkers,
— dictionaries and thesauruses,
— CD rom, and
— data bases.
- communications technologies (e.g., faxes, modems).
- video and audio recorders.
- printers, typewriters, copy machines.
- mass media (radio, television, periodicals).

11. Learn in a setting that promotes enjoyment in lifelong pursuit of reading, writing, speaking, and listening.

Scoring Communication Performance Assessments

Scorers use a variety of benchmark papers for each score category and at each grade level. These benchmark papers are guides for assigning scores. The various benchmark papers reflect the fact that no two papers—even two advanced responses—are identical because students express themselves in different ways. The instruments and scoring criteria are designed to give students the greatest possible flexibility in demonstrating their "literacy power." Before each assessment period, teachers counsel students about the importance of leaving a thinking "trail" through what they write in their instruments.

Score points are identified using two sets of criteria. The first is applied to the entire instrument to find evidence of the student's ability to make sense through reading, listening, and viewing. The second is applied to the centerpiece writing required by each instrument.

Performance Criteria: Making Sense of Reading, Listening, and Viewing

These criteria apply to the entire assessment instrument. They address language power as demonstrated in the student's responses to the reading and oral activities in the instrument. The criteria focus on the use of skills in analysis, creative thinking, problem solving, decision making, visualizing, and concept development. Evidence may be of many kinds, but it may be grouped in five primary categories: understanding, connecting, self-reflection, evaluating, and involvement with the activity.

An advanced response gives evidence of these categories across the entire instrument and is varied in approach. This evidence within each category may take various forms (see below). Even a top performance need not include all, or even a majority of these forms, since individuals make sense of their experience in different ways. Students should try to leave a thinking "trail."

Understanding is recognized through the students' apparent grasp of the materials presented and includes, but is not limited to:

- literal understanding of written, oral, and visual messages
- drawing and supporting inferences
- insightful observations
- developing concepts and ideas
- following directions

Connecting represents students' ability to think about and work with the materials and information provided. It includes, but is not limited to:

- connecting the "new" to the "known"
- organizing or reorganizing information
- analysis and synthesis of information or ideas
- transferring ideas from one context to another
- seeing connections among ideas and data
- using analogies

Self-reflection refers to students' ability to think about their own work. It includes, but is not limited to:

- thoughtful examination of one's work and thinking
- evaluating one's ideas

- revisions and extensions of ideas
- monitoring of reading, listening and viewing strategies

Evaluating refers to students' ability to look critically at what they read, hear, and see and to test it against their total experience. It includes, but is not limited to:
- agreeing or disagreeing
- applying criteria
- testing evidence or support
- aesthetic responses

Involvement with the activity is evidenced by students' engagement with their work, materials, and/or ideas. It includes, but is not limited to:
- persistence or perseverance
- risk-taking
- willingness to confront unfamiliar vocabulary, ideas, or activities
- leaving a thinking "trail"

Description of Score Categories

The score categories for reading, listening, and viewing are **not** intended to evaluate "correctness" in the sense of mechanical conventions (such as spelling, word usage, punctuation, and format) in student work because most of the instrument is an exploratory rough draft. Correctness is measured in the score categories for the centerpiece, which is considered a published or finished work.

- **Advanced Response:** The response provides striking evidence of making sense through reading, listening, and viewing. Evidence is found within each of the five criteria classifications.
- **Proficient Response:** The response is fully acceptable. It provides consistent and varied evidence of making sense through reading, listening, and viewing.
- **Nearly Proficient Response:** The response contains significant and varied evidence of making sense through reading, listening, and viewing, but this evidence is sporadic or largely confined to specific activities in the instrument.
- **Minimal Response:** Although the response contains occasional evidence of making sense through reading, listening, and viewing, this evidence lacks range and/or consistency.
- **Attempted Response:** The performance contains no real evidence of making sense through reading, listening, and viewing, although occasional, disconnected attempts are made to respond to instructions.
- **Not Scorable:** The paper is blank, or the response is irrelevant or unreadable.

Performance Criteria: The Centerpiece

The second set of criteria assesses students' ability to express themselves effectively in writing. These criteria are confined to the centerpiece, which is considered a finished work. They include substance, development, coherence, use of language conventions, and style. To meet an acceptable standard of performance, a piece of writing should be substantial, developed, coherent, and acceptably conventional. Those characteristics are essential. It is also important for the piece to be interesting, but it is not essential.

All criteria should be met as they apply to the writer's chosen genre. For example, a narrative requires details that depend on the five senses and possibly the use of dialogue, while persuasive writing needs logical argument, sound evidence, and emotional appeals. It is important to keep

in mind a student's grade level and the limited time available for editing and revising. Few educated adults write text that is error free, even after preliminary editing.

Substance: The emphasis here is on content of the message. Scorers observe, among other things, whether

- a clear intent exists and is either overtly stated or easily inferred,
- the content is worthwhile or interesting (not trivial, banal, or trite),
- the writing is internally consistent,
- the writing does not stray unintentionally from the intent, and
- the centerpiece displays insight.

Development: The response should contain adequate verification or specification of ideas. This might include

- having a compelling lead-in and a satisfying, definite resolution,
- development that is appropriate to the genre,
- development that is adequate to make the writing credible, and
- development that is varied across the range of possible strategies in the genre

Coherence: The response should be organized and fluent. The writing

- is consistently organized;
- has smooth, logical transitions; and
- displays fluent, well-paced expression.

Conventions: The approach to writing conventions should not distract the reader and thus detract from the message. The writer

- uses conventional spelling,
- uses conventional punctuation (including capitalization),
- uses conventional usage,
- uses an appropriate format (includes paragraphing), and
- uses grammatical sentence structure.

Style: A proficient or advanced response controls style to make the writing effective and interesting. It includes, but is not limited to,

- word choice (specific, fitting, energetic, natural),
- voice (ring of conviction, reveals person beyond the words),
- appropriate tone,
- imagery (when appropriate),
- willingness to take risks, and
- appropriate use of rhetorical devices.

Description of Score Categories: Centerpiece

- **Advanced Response:** The response constitutes a distinguished piece of writing, demonstrating unique style and exceptional control of all the essential criteria. Its relation to the instrument is overt or easily inferred.
- **Proficient Response:** The response meets all of the criteria including style as they apply to the writer's genre but falls short of being a distinguished piece of writing. The response's relationship to the instrument is clear.
- **Nearly Proficient Response:** The response is substantial—at least a marginally developed, coherent, and conventionally acceptable piece of writing—characterized by an unexcep-

tional style.

- **Minimal Response:** The response satisfies some of the essential criteria but falls substantially short of the standard in one or more of them.
- **Attempted Response:** The response represents an attempt to produce a piece of writing as required by the instrument but is unfocused, underdeveloped, disorganized, and mechanically distracting.
- **Not scorable:** The paper is blank, or the response is irrelevant or unreadable.

Sample Language Arts Instrument

The following sample language arts performance assessment instrument was field tested during the 1993-94 school year. Teacher writers slightly modified the instrument in July 1994 because the instructions were not clear. The teachers also expressed concern about the lack of balance in the reading passages across the instrument. The revised instrument contains more representative selections about advertising. The following examples of student work are taken from the field test, which used the earlier version of the instrument. In all important respects, it is like the revised instrument and serves as an accurate representation of the final instrument.

The performance assessment instrument addresses nine of the 17 Wisconsin Learner Outcomes, which are listed below in order of importance in the instrument (the numbers in parentheses refer to the language arts outcomes as listed in Figure 7).

- The students follow oral and written instructions over a five-day period. (4)
- They create two quality products, an advertisement for an imaginary or real product and a written analysis of that advertisement's effectiveness. (6)
- They transfer what they learn from various readings and from class discussion of actual advertisements to development of a good advertisement. (8)
- They consider audience in development of the advertisement. They make an appropriate choice of product for which to develop an advertisement. (3)
- They draw upon advice from peers in deciding upon a product to advertise, considering the types of appeal, and revising and editing the centerpiece paper. (11)
- They analyze and solve the problem of marketing a product to the intended buyers. (14).
- They examine and explain their marketing strategies in the centerpiece paper. They also reflect on their overall performance on the instrument. (10)
- They evaluate the advertisement as directed in the instructions for the centerpiece paper. (1)
- They revise the initial draft of the centerpiece paper after feedback from peers. (2)

Competence in the following language arts content guidelines allows students to do well on the assessment instrument. The numbers in parentheses refer to major sections of the content guidelines.

- The student writes several kinds of text (3) during the assessment: a critique of his or her advertisement, the text for an advertisement, extemporaneous responses to questions on reading, notes on reading and oral discussion, various prewriting devices. Many of the subpoints in the scoring criteria for the centerpiece refer directly to this portion of the guidelines.
- The student needs to understand and infer conclusions based on a number of kinds of text including advertisements, essays, and other students' writing. (4) The criteria subpoints are partially drawn from the guidelines.

- The student is expected to participate in discussions of advertisements and essays and to give oral recommendations to other students on his or her work. (5) No attempt is made to score the effectiveness of participation.
- The student listens to the teacher and other students in class discussions. The student is expected to make use of what he or she hears in developing the advertisement and the centerpiece. The student is to listen to and use, if appropriate, suggestions from peers in making revisions. (6) The scoring criteria draw upon this part of the guideline.
- The student is expected to evaluate and apply advertising techniques that are found in, and are an important part of, mass media. (7)
- The student's analysis of advertisements and preparation of his or her own advertisement requires the student to examine and use techniques of logic, evidence, and propaganda devices. (10)

Advertising Instrument: Student Example

Directions

Introduction

For the next five days, you will be participating in a statewide field test that has been designed to help Wisconsin Legislators and educators understand how well you use language arts. As part of this field test, you will be asked to read and write, speak and listen, reflect and think. Your reading and writing will be focused on advertising, and the impact of advertising on society.

General Instructions

1. Record your name and the other information called for on the front page of this booklet.
2. Follow the directions provided in the booklet for each activity. Instructions and review sections have been included to help you. Your teacher will review these sections with you.
3. All of the writing you do during the assessment, including your notes, diagrams, or pictures will be completed in this booklet. Do not be concerned about the neatness of your scratch notes or whether what you write is correct. You will be asked to think about and explore ideas, and then to clarify what you think; and it is expected that your initial thoughts will be less clear than your final versions.
4. You can review work you have already completed or look ahead to work that will be asked of you at any time during the five-day assessment whenever you feel it will be helpful to you.
5. Return this booklet to your teacher at the end of the class period.

How this test will be scored:

1. Your work will be scored in these ways:
— how thoroughly you read and make sense of what you read
— how well you develop and express your thoughts and ideas through speaking, listening, and writing
— how much you learn throughout the course of the assessment
— how much of an effort you make to consistently do your best throughout this assessment
— how effectively you express yourself in writing on the final writing assignment
2. You may find that some activities are more helpful to you than others when it comes to showing your abilities in language arts. However, all of your work throughout this assignment will be read and scored.
3. As you go though this assessment, keep in mind that your work will be scored by teachers who are trying to assess how well you have mastered language arts. Take good notes. Show your thinking and ideas as they develop. When you get a good idea write it down! When a classmate gives you a good idea, write it down too—that shows the scorer that you have good listening skills. If someone gives you a criticism or suggestion, write it down—you don't have to agree with it, but your thoughts about the suggestion and your responses to criticism show the scorer how well you can take in new information and synthesize it into your own thinking.

The teachers who are reading and scoring your work are not looking for a "right answer," but are looking for evidence of how well you read, write, speak, and listen, and how you use your reading, writing, speaking, and listening abilities to creatively explore your own thought.

This test was designed to give you an opportunity to show your best work, and we hope you find it an interesting way to do so.

Day 1: Exploring the issue of advertising and persuasion

Introduction: Today you will begin exploring and thinking about advertising and how it works. As you go through the rest of this assessment, you will be building on the work you do today.

Before you begin your study of advertising, you will be asked to write down everything you already know about or associate with the topic of persuasion and advertising. This activity will provide a starting point on which you can build for the next five days, and it will help you stay focused on the issues.

Activity #1: List and describe, in the space below, as many advertisements as you can think of that you encounter on a regular basis. You might want to organize them in terms of ads that you like or dislike. Include in your listing any ads that you see on television, hear on the radio, read in newspapers or magazines, or spot on billboards or at the places where you actually shop for the products.

TV

Clapper
Chia pet
Kodak
Hallmark
Timex
Wild heart perfume (Revlon)
Jello
Folgers
Crazy Glue
Sears
J.C. Penny
Daylon's
Citizen (watches)
Campell's Soup
Pizza Hut
Dominos
Little Ceazer
Fisher Price
Barbie
Teenage mutant Ninja Turtles
Calvin Kline
Cody Stetson

Radio

Hooked on Phonics
Pizza Hut

Magazines

Tribe
Perferred STOCK
Eternity
Rebok
Nike
Fisher Price
Barbie

Activity #2: After reviewing your notes from the previous activity and the section titled, Class Participation, participate in a class discussion of the following topics:

1. What differences do you notice between advertisements that have different "targets" or audiences (for example, ads that "target" teenagers compared with ads that "target" children or adults.)
2. How do you think advertising influences people?
3. How do you think advertising influences you?
4. What do you think it would be like to live in a society without advertising?

Class Participation can include

- **listening**
- **asking questions**
- **offering a new idea**
- **sharing an idea you learned**
- **responding to a classmate**
- **being a courteous listener**

Note-taking is one way to demonstrate your ability to listen and make sense of what you hear and read.

Class Discussion Notes:

Homework Assignment: In order for you to study and write about advertising, you will need to collect samples of a variety of ads. Your "homework" for this assignment is to bring examples of advertisements to class tomorrow. Take notes on commercials you see on television; if you can, cut out some ads from the newspaper or from magazines or flyers—if you don't want to cut them out, copy down the main points of the ads; take notes on ads you hear on the radio and see in stores and on roads or on buildings.

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Activity #3: After reviewing the section titled, **Reading and Note Making Strategies,** read and make notes on the following section from a chapter entitled, "Claims Analysis: The Fine Art of Deception Detection," in *Understanding Mass Media.*

Reading and Note Making Strategies: Here are some strategies that might help you read with more understanding. While you read, you should

- Ask yourself, "Do I understand?" If not, go back and read again.
- Read on for more information before you make a judgment or if you are not sure.
- Make notes on the text to record ideas the article makes you think about.
- Underline or highlight important passages.

Reading #1
from "Claims Analysis, The Fine Art of Deception Detection"

excerpted from *Understanding Mass Media*
by Jeffrey Schrank

Notes

Advertising has probably been around since one of our ancient ancestors let out a yell and offered to trade two skins for someone else's "handcrafted never-miss arrows." Today advertising is one of the nation's largest businesses, and many consider it our most influential mass medium. By the time a person is 60 years old, he will have seen and heard approximately 50 million advertising messages. Most will be ignored, some will prove helpful and honest, but others will mislead.

- around for # of years
- largest business
- 50 mil advertisements in our lifetime
- misleading

Advertising can be either constructive or harmful. It can help consumers (and everybody is a consumer at some time) discover new products they want, or it can tell when to buy something at the lowest possible price. But it can also mislead people into buying things they don't want or thinking a particular brand or product is better than it is in reality. To be able to tell the difference, each person needs to become a skilled reader of ads.

To make advertising serve rather than mislead you there are two important skills to learn. The first is the ability to determine exactly what facts are presented in an ad. The second is the ability to recognize how the ad is trying to make the product appealing. These sound like two simple skills, but advertising experts spend millions of dollars to make the job difficult.

product claims
What product do
types of claims

Looking for facts in ads and commercials requires the mind of a Sherlock Holmes and the logic of a computer. Almost every advertisement makes what is called a product claim. The claim is simply what the ad says about the product. For example, "Jumbo pens write longer than any other ballpoint pen" claims very clearly that the Jumbo pen writes longer than any other pen. That sounds simple, yet claims are rarely as clear as that made for the Jumbo pen.

There are two basic kinds of claims—one that provides information useful in making a purchase decision and the other that tells little or nothing factual.

Here are some advertising claims similar to ones that have been used repeatedly on radio and television and in print advertising.

To create the necessary illusion of superiority, advertisers usually resort to one or more of the following ten basic techniques. Each of them is common and easy to identify.

1. The Unfinished Claim

The unfinished claim is one in which the ad claims that the product is "better" or has "more" of something but it does not finish the comparison.

Samples:
"Brand X gives you more." (More what?)
"Twice as much of the pain reliever doctors recommend most." (Twice as much as what?)
"Brand X—700% quieter."

2. The Weasel Word Claim

A **weasel word** is a modifier that makes what follows nearly meaningless. The term **weasel word** comes from the habits of weasels who suck out the inside of a raw egg through a tiny hole. An unsuspecting person picks up what looks like a whole egg only to find it is empty. Weasel word claims sound convincing at first, but upon closer examination turn out to be empty claims.

The most common weasel words include helps (perhaps the most used), virtual or virtually, like (used in a comparative sense), acts or works, can be, up to, as much as, refreshes, comforts, fights, the feel of (also the look of), tastes, fortified, enriched, strengthened.

Samples:
"Helps control dandruff symptoms with regular use" (This claim is an accurate statement about the product. A consumer would be wrong to think that the claim is the same as "cures dandruff.")
"Leaves dishes virtually spotless" (An unskilled ad reader will remember the claim as being "spotless" and not almost ("virtually") spotless. We hear so many weasel words that we tend to tune them out—which is exactly what advertisers want.)
"Fights bad breath" (This is much like "helps control dandruff"; it does not say "stops bad breath.")

3. The "We're Different and Unique" Claim

This kind of claim states simply that there is nothing else quite like the product advertised. For example, if a bread manufacturer added chartreuse food coloring it could advertise, "There's nothing like new chartreuse Super Bread." The uniqueness claim is supposed to be interpreted by readers as an indication of superiority.

Samples:
"There's no other mascara like it."
"Brand X is like nobody else's car."
"If it doesn't say Brand X it can't be juvena."
"Only Brand X has P207." (This is the same as the "juvena" gambit. Brand Y has X 609 and Brand Z has Q93.)

4. The "Water is Wet" Claim

"Water is wet" claims say something about the product that is true for any brand in that product category (e.g., "Schrank's water is really wet"). The claim is usually a statement of fact, but not a real advantage over the competition—though it is made to sound like one.

Samples:
"Brand X, the Detergent Gasoline." (true of any gas).
"X mascara greatly increases the diameter of every lash." (any mascara brand does).

5. The "So What" Claim

This is the kind of claim to which the careful reader will react by saying "So What?" A claim is made that is true but that gives no real advantage to the product. This technique is similar to the "water is wet" claim except that it does claim an advantage that is not shared by most of the other brands in the product category.

Samples:
"Brand C gives you tasty pieces of chicken and not one but two stocks." (What good are two stocks?)
"Strong enough for a man but made for a woman." (This deodorant claim says only that the product is aimed at the female market).

6. The Vague Claim

The vague claim is simply not clear; this category often overlaps others. The key to the vague claim is the use of words that are colorful but meaningless, as well as the use of subjective and emotional opinions that defy verification. Most contain weasels.

Samples:
"Lips have never looked so luscious." (Can you imagine trying to either prove or disprove such a claim?)
"Brand Xs are fun—they taste good, smell good and feel good."
"Its deep rich lather makes hair feel new again."

7. The Endorsement or Testimonial

A celebrity or authority appears in an ad to lend his or her stellar qualities to the product, whether they are related or not. Sometimes the people actually claim to use the product, but very often they don't. Some agencies survive by providing "names" for testimonials.

Samples:
"Athlete "A" for Brand Z."
"Movie Star "X" for Brand Y."

8. The Scientific or Statistical Claim

This kind of ad refers to some sort of scientific proof or experiments, to very specific numbers, or to an impressive-sounding mystery ingredient.

Samples:
"X Bread helps build strong bodies 12 ways." (Even the weasel "helps" did not prevent the FTC from demanding this ad be withdrawn. But note that the use of the number 12 makes the claim far more believable than if it were left out or replaced by, say, "many ways."
"Brand X has 33% more cleaning power than another popular brand." ("Another popular brand" translates simply as some other kind of oven cleaner sold somewhere. What the claim probably means is that Brand X comes in a can 1/3 larger than the can used by another brand.)

9. The "Compliment the Consumer" Claim

This kind of claim butters up the consumer by some form of flattery.

Samples:
"You've come a long way, baby."
"The lady has taste."
"Brand X costs more, but I'm worth it."

10. The Rhetorical Question

This technique demands a response from the audience. A question is asked that is worded so that the viewer or listener is supposed to answer in a way that affirms the product's goodness.

Samples:
"Shouldn't your family be drinking Brand X?"
"Wouldn't you really rather have an X?"

As you look at each of the following ad claims, note in the margin what you think the commercial "claims" about the product. Rate each claim as either
(a) one that provides useful information or
(b) one that gives little or no useful information. Then go on and read the comments made by a skilled ad reader.

CLAIM A: Toothpaste
"Everbright toothpaste helps get your teeth whiter and cleaner. Its special ingredient XT-40 fights tooth decay."

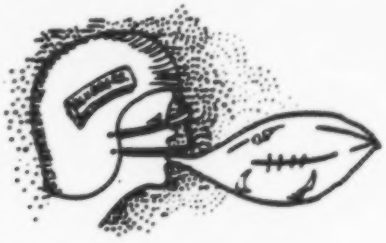
Comment: Claim A. This ad contains no useful information. Many ads make use of comparative adjectives such as whiter, cleaner, quieter, etc., without saying whiter or cleaner than what. Cleaner than if you used mustard as toothpaste? Whiter than if you used licorice paste? The ad doesn't say. Perhaps the ad means only that brushing teeth is better than not brushing. The claim invites the reader to supply the missing comparison by saying "cleaner and whiter than any other toothpaste." But the ad does not say this, and to believe it does is to misunderstand it. The ad is not misleading only if it is read very carefully.

Another claim made in the ad is that Everbright contains a special ingredient—XT-40—to fight tooth decay. Who knows what XT-40 is? It could be something that has always been in the toothpaste; it could be something that all toothpastes contain.

The claim "fights tooth decay" is very carefully worded. It doesn't say "stops" tooth decay. If Everbright were able to stop tooth decay, the ad would say that. Brushing with water also "fights tooth decay" so do toothpicks.

CLAIM B: Gum

"New improved Blubber bubble gum now has twice as many sticks of gum. New Green blubbers is chewed by more professional football players than any other bubble gum. Look for Blubbers in the bright green package wherever good gum is sold ."



Comment: Claim B. The word new (or revolutionary, or improved, or all new) is another of the advertiser's favorites. "New" does not necessarily mean better—it simply means different.

The fact that Blubbers has twice as many sticks is not the same as saying twice as much gum. They may have simply cut the same amount of gum up into smaller pieces. If the amount of gum had doubled, the ad would probably state that very clearly.

The claim that pro football players chew Blubbers means little. Perhaps each player was mailed a case at the beginning of the season. It would be a very hard claim to either prove or disprove. Also, there is no real connection between chewing gum and playing football well.

CLAIM C: Gasoline

"Strictly controlled scientific tests by an independent testing laboratory show that Imperial gasoline with PowerTane outperforms any gasoline made without PowerTane. Get Imperial gasoline with PowerTane to help your car run quieter, smoother, and get more miles per gallon."

Comment: Claim C. Be careful with this claim. Begin with the knowledge that gasolines are all pretty much the same. The claim here sounds good, but if you read carefully you can see that you never find out exactly what "PowerTane" is (remember "XT-40"). If "PowerTane" is simply a trademarked name for some common ingredient, then it would certainly be honest to say that "Imperial gasoline outperforms any gasoline made

without PowerTane." In fact, all gas does have the same ingredient that Imperial calls PowerTane. But Imperial has registered the name "PowerTane" so that no other company can use it—this is called a registered trademark. The claim amounts only to saying that "our car with wheels rides smoother than any car made without wheels."

The ad encourages the unskilled reader to think that Imperial outperforms any other gasoline. But the ad does not actually say that. If Imperial did indeed outperform any other, you can be sure the ad would say so very clearly. Notice that the ad never uses untruth. Also notice that the final sentence again contains comparisons without an ending. Quieter, smoother, and more miles per gallon than what?

Concluding comment: One basic rule to remember in analyzing ads is that if any product is truly superior, the ad will say so very clearly and will offer some kind of convincing evidence of its superiority. If an ad hedges at all about a product's superiority, you can suspect that it is not really superior. You will never hear Standard Oil (or any other brand) say "Standard gasoline in your car gives you four miles per gallon more than any other brand." Standard would love to make such a claim, but it simply isn't true. Comparable types of gasoline are all pretty much the same. Although there were some clever and deceptive ads a few years ago, no one has yet made an outright claim that one brand of gasoline is better than any other brand.

Activity #4: Look back over the notes and markings you made when you read "Claims Analysis: The Fine Art of Deception Detection." In the space below, answer the following question.

1. Explain how the information in this article may affect how you look at advertising in the future.

The information in this article will make me take a hard look at a product, not its advertisement before I buy it. I knew that what you hear or see in a commercial isn't always what it seems, but I didn't think that advertisers would stoop that low to sell a product.

Day 2: Building on your knowledge about advertising

Introduction: Today, you will analyze the ads you and your classmates brought to class and then discuss and read an additional selection, "Profits Without Honor" by Donna Woolfolk Cross. After you read and respond to this selection, you will work on creating an original ad using what you have learned about principles of advertising and persuasion.

Activity #5: Participate in a brief class discussion to examine several advertisements and discuss the following observations:

- What claims are used in the ads?
- How do the different ads appeal to different audiences?
- What makes the most effective ads work?

NOTES FROM CLASS DISCUSSION:

Maceveron here comes something (leaner) - claims leaner than bacon
Chevy trucks like a rock. Chevy is strong to health conscious pers
Pulse - hottest newest no comercial - not always better intended for
Tropicana - 100% pure nothing added (men & strong people
Arizona jeans - cool appeals to teens
Hamburger helper makes meat - claims to make the meat nothing added.
Club Auto - Don't be a (victim) applys your going to be without me

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Activity #6: As you read this selection from "Profits Without Honor," a chapter from MediaSpeak: How Television Makes Up Your Mind, continue to use the reading and note-making strategies described on page 67.

Reading #2
"Profits Without Honor"
from *MediaSpeak* by Donna Woolfolk Cross

Notes

If there is absolutely no need for a particular product, the adman must invent one. He must convince you that your health and happiness will be in jeopardy if you don't buy his product. Believe it or not, "in the beginning" there was no mouthwash. Proper oral hygiene consisted of a thorough brushing with a good toothpaste. Then one day an enterprising stranger rode into town peddling a new product, a liquid made of water, alcohol, and assorted additives that would "freshen your breath." People weren't interested. "What can this stuff do for me that toothpaste can't?" they asked. Not to be deterred, the stranger hired himself an advertising agency.

Soon the television disease-control center was informing people about a new and terrible disease. No one was immune from it: Housewives, clerics, teenagers, bad drivers, lawyers, new mothers, were being struck down with a devastating malady. Far from eliciting sympathy, a person who contracted this disease was sure to lose his promotion, friends, loved ones, and paper boy. The sufferer himself was always the last to learn, usually from a hastily departing relative, that his affliction was...*halitosis.*

Bad breath was smiting the land, the righteous along with the sinners. A great panic might have ensued but for the miraculously timed appearance, at that very moment, of a cure: mouthwash. Soon Americans were buying bottles of it by the millions, and many could discourse knowledgeably about the virtues of various brands: "mediciney" vs. "sweet," etc. Skeptical about claims for the product, the American Dental Association and the National Academy of Sciences, after several intensive studies, issued a report stating that mouthwash has no lasting effect on bad breath, and that rinsing one's mouth with salt water is just as beneficial as mouthwash. But medical science delivered its verdict too late. People had been taught to believe in mouthwash. The stranger rode out of town a very rich man.

Activity #7: Look back over the notes and markings you made as you read from MediaSpeak. In the space below, answer the follow questions.

1. **The author, Donna Cross uses satire to make a point about advertising. What do you think she is trying to tell her readers about advertising?**

Donna Cross is trying to tell her readers that advertising works with people's emotions. At first she mentioned that no one wanted mouthwash because the had come to relay on toothpaste. When an advertising agency made a false cause for mouthwash people jumped and had to have it. Donna is trying to teach her readers that a product isn't what it seems and if the advertisement says it cures or fights a problem, don't always believe it.

2. **Do you agree or disagree with her analysis? Why?**

I agree with her because people, it seems, need to be told what to do. By saying, in the Add, that mouthwash fights bad breath, than everyone wants mouthwash. People are foolish. Through their acts of order, they bye and do some ridiculis things.

Activity #8: After reviewing the Group Discussion Strategies move into your assigned group. In your group discussion, re-examine the advertisements you and your classmates brought into class. See if you can identify the explicit and implicit messages as well as the appeal of each of these ads.

Take notes during the discussion, but you do not need to write essay answers. Your ideas can be different than your group members, but in your notes, you would write down when you agree and when you have a different idea than the group.

Group Discussion Strategies. In a discussion, you can express your own ideas as well as listen to the ideas of others. Here are some suggestions that might help you gain more from your discussion:

✓ Help the group decide on a plan for the discussion.
The group needs to decide who will talk first, how long each person should talk, who can ask questions, and who should talk next.

✓ Share your ideas with the group.

✓ Ask others what they think of your ideas.

✓ Ask others to share their ideas with the group.

✓ If you don't understand what someone is saying, ask them to tell you again in a different way.

✓ Listen carefully so you can add to the discussion.

✓ Take your turn without interrupting others.

AS YOU TRY EACH SUGGESTION, CHECK IT OFF. NOTE IF THE SUGGESTIONS HELPED THE DISCUSSION.

In the space provided, briefly describe each ad. Identify the

- audience or the intended buyer,
- the claim or what is said, and
- the appeal or how the ad appeals to an emotional need.

Ad #1 Ultimate Scrape Dripper

Audience Hunters

Claim Improves chances of "Bagging" a buck

Appeal - to anybody who does not want a big buck

implies that you will get your buck with this product.

Ad #2 Coke Classic

Audience ~~Re~~ Appreciators thirsty people

Claim where ever there is fun there is Coca-Cola - claiming if you're drinking coke - you're having fun

Appeal - Appears to be fun - has a catchy tune

implying a fun time with coke only coke

Ad #3 Harley Davidson

Audience - people who love the bikes

Claim family bike - anyone not just gang members can Harley's

Appeal - will give you a ~~feeling~~ happyness and joy

implying that anyone can ride a hog

Ad #4 Energizer Bunny / Battery

Audience Battery consumers

Claim it keeps going and going and going

Appeal - ~~Human~~ with that the rabit keeps going and nothing can kill it

implying that the energizer battery is reliable

Ad #5 Big Sur waterbeds

Audience - Kids

Claim - quality beds that Kids will like

Appeal - cool Kids have waterbeds everyone should have one.

implying that Kids will love these beds

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Day 3. Design an original advertisement

Introduction: Today you will work on creating a rough draft of an advertisement based on your understanding of claims and appeals in ads. Before or during the writing of your rough draft, you may want to look back over the material you wrote in response to the readings or the writing you did in preparation for an in response to your group discussion.

Activity #9: Working alone, create an advertisement that will incorporate claims and appeals. This can be done in one of two ways—each of which is described below.

SELECT ONE OF THE FOLLOWING OPTIONS:

A. Imagine an original product or service, then design an ad for this product or service.

B. Design an advertisement for a product or service you (or you and a group of co-workers) currently offer or might like to offer.

After you complete your advertisement, you will be asked to write an essay describing your choices and strategies. This writing assignment is on page 82 and you may turn to this page and read this assignment at any time.

Strategies for drafting your advertisement: In designing your ad you should assume that your audience knows little, if anything, about your product or service. Therefore, in the ad you should:

- **include information about your product or service,**
- **describe its benefits for the purchaser (or user),**
- **demonstrate its superiority over other competitive products or services.**

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Ad planning sheet

What product or service are you offering? Bit warmer

Description: a heat light bulb that is covered with a thick plastic. There are several grooves or indentations to hold 1-5 bits

How will it benefit the user? ~~The bulb should be used when for~~ it will save the rider time from having to manually warm the bit with the fire or her hand.

How is it better than competitive products or services?

This is a one of a kind product. There aren't any competitive products on the market.

Who is the intended audience?

Horse owners that have problems with cold bits.

Where will you put the ad? (e.g., magazine, flyer, billboard, etc.)

~~Store~~ - In numerous horse magazines like Horse and Rider, Horse Illustrated, Equine, Arabian Horse times, ect.

What claim(s) will you use?

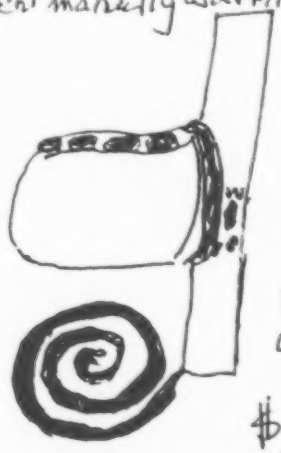
This product will save the wasted time of warming bits in cold weather.

Draw, sketch, or write script for your ad here.

(**NOTE:** You are being evaluated on your ideas rather than your artwork.)

The New Bit Warmer 5000

Safely warms those frozen bits for your horse's soft mouth. Guaranteed to minimize wasted time that is spent manually warming bits



Uses one 50 volt heating bulb. Mounts on to any wall

$29.95 Add $5.50 shipping & handling

Send check or money order to 6001 Sparks Ave. Mayville KN37016

After you have drawn your ad, try to determine whether your ad has an emotional appeal. Try to identify what it is and include that information in your rough draft.

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Day 4: Writing the rough draft

Activity #10. In the space below, write an essay which describes your product or service and the advertisement you created. In this essay, consider the following:

- product description
- intended audience
- claims used
- emotional appeal
- why advertising is important to your product or service
- what would happen if this product or service were not advertised.

You may refer back to your Ad Planning Sheet on page 80.

Rough Draft

My product The Bit Warmer 5000 is a patented new design to help horse owners that have a problem with cold bits. The Bit Warmer 5000 is made of a tough polyurithane plastic piece that attaches to the stainless steel base. The cover can unscrew to reveal a fifty volt heating light bulb. The bulb aids in heating the cold bit. To use this product the user must only screw in the bulb, attach the plastic covering, plug the unit in and place the bit attached to the bridle on the specialized holding device. This product is intended for the active horse enthusiast that is effected by a cold climate.

This unique and helpful invention will speed up the time that is wasted by warming bits the old fashion way, improves a horses performance, if the bit is warm the horse relaxes with the bridle, is easy to use, and will insure rider's life with the horse to be a pleasurable one. All of these facts or claims will be used to promote our products

We tend to tip a few heart strings, so to speak, with the needs of fellow horse owners. If we state that the Bit Warmer 5000 will give their horses the attention they need when it comes to bits, the intended audience will be sucked in to buy the product.

In order to get the effects mentioned the Bit Warmer 5000 must be advertised. If the ad would, for starters, be placed on a few recognized horse magazines, we could monitor the successes of the product. If sales go up we can administer the ad into other magazines. Without advertising the life of this product will decrease.

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If no one knows about this outstanding breakthrough in the horse industry, then no one can reap the benefit of the product. Advertising is crucial to this product because without it, the Bit Warmer 5000 will never make it in the ~~horse~~ profession. ~~Lightwood~~

Activity #11: Before writing your final draft, read the section, Revision Strategies. Then form a discussion group of two to three classmates to seek suggestions about your rough draft. Read your paper aloud and encourage comments about what words, phrases, sentences and paragraphs might be added, deleted, substituted or reorganized. Record these suggestions in the space below.

Be sure that your final draft clearly indicates what you want to say about advertising and gives detail, specific examples or illustrations of your point of view.

Revision Strategies. Look over your rough draft and ask yourself how it can be improved. Decide what revisions will make your rough draft into a stronger piece of writing. Here are some strategies that might help you revise.

- **Reorganize**—change the order of words, sentences or ideas.
- **Add details**—support or illustrate points you have already made; or add background information so that your thoughts are more clear and more believable.
- **Delete**—take out unnecessary words and sentences.
- **Substitute**—replace words, sentences, or ideas with ones that are more familiar, more powerful, or more colorful.

Peer Revision Suggestions

What details could I add to make my writing more interesting or more clear?

-I could add the names of the magazines that the ad should be advertised.
-I need to state the old fashioned way of warning kids.

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What could I delete that confuses or distracts the reader?

- I need to delete the 3rd paragraph and rewrite it.

What words, phrases, sentences or images could I substitute?

- I need to rewrite the topic. The Bathroomer 500 - I keep using the word this product.

How could I reorganize my ideas?

- I need to rewrite the third paragraph. - It doesn't sound like I want it to.

Additional ideas for revision?

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Day 5: Writing the final draft and finishing the assessment

Activity #12: Today you have an opportunity to revise and polish your writing—to elaborate and support your key points and to write as clearly as possible. Use the space below to write your final draft. You will also want to be sure that your final draft

- describes your product and its intended audience,
- describes the claims and emotional appeals of your ad,
- discusses the importance of advertising to your service,
- speculates what would happen if this product or service were not advertised.

Your piece of writing should be well-organized, the relationships among its ideas or topics clear, and its ideas extensively elaborated and supported. In addition, the piece should be well-written. It should be properly punctuated and should have correct spelling, capitalization, and grammar. The final draft should be an example of your best work.

Final Draft

My product, The Bit Warmer 5000, is a patented new design to help horse owners that have a problem with cold bits. The Bit Warmer 5000 is made of a tough polyurithane plastic piece that attaches to the stainless steel base. The cover can unscrew to reveal a fifty-volt heating light bulb. The bulb acts in heating. To use this product, the user must only screw in the bulb, attach the plastic Covering, plug the unit in, and place the bit, attached to the bridle, on the specialized holding grooves.

The Bit Warmer 5000 is intended for the

active horse enthusiast that is effected by a cold climate. It speeds up the process of warming the bit in the old fashioned ways of sticking it between your legs, holding it in your hand, or putting it any where on your body to keep or get the bit warm.

We tend to claim in the ad that the Bit Warmer 5000 is a time saver, energy wise. If only omit uses a small charge bulb, helpful, and will give the rider a smooth and comfortable ride. We can claim this because all of the above are true facts. The rider, by the way, will get a comfortable ride because the horse will work its mouth better because the bit is pleasant for to hold in its mouth. Thus the rider can control the horse better than he or she could with a cold bit.

In order to get the effects mentioned, the Bit Warmer 5000 must be advertised. The ad needs to be placed in a few magazines like Horse and Rider or Horse Illustrated. Then

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When the public shows interest, we can increase the circulation to insure business. Without advertising, the life of this product will decrease.

If no one knows about this outstanding break through in the nose industry, then no one can reap the benefit of this product. Advertising is crucial to The Bit Wainer 5000 because without it this product will never make it in this profession.

Finishing the Assessment

Activity #14: We would like to know how you feel about the assessment process. Please answer the following five questions.

1. What activities did you find most helpful, interesting, or fun?

I like the last activity because I could make an honest ad.

2. What do you think about the topic of advertising and about the reading selections?

Advertising is a fake medium. I never rely on an ad when I chose a product of another. The reading selections were true and ~~~~ I was expecting to read the information.

3. What would you change about this assessment to make it better?

Nothing. I honestly think it was fun and challenging.

4. In your opinion, was this assessment fair? Did you have enough time and did the activities let you demonstrate what you can do well?

I needed more time for the final writing today, but otherwise everything went well.

5. How does your work on this project compare to other work you've done?

I think my other work is better because I am free to write about any subject I want. I'm not so thrilled about writing about an ad, but I still tried to do my best.

Thank you for participating in this field test.

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Advertising Instrument: Analysis of Student Work

A Wisconsin tenth-grade student completed the sample language arts performance assessment during the 1993-94 field test. This student's work provides a good example of a completed instrument that is proficient as previously defined. It represents the level of work expected of all Wisconsin tenth-grade students.

The following explanation of how the student's work meets the standard for proficiency for each of the two scoring categories also suggests what the student could have done to achieve an advanced rating. Few students at any grade level probably will achieve an advanced rating. Remember, this is tenth-grade work prepared within time constraints. It will not be flawless.

Making Sense of Reading, Listening, and Viewing.

Understanding: The student's answers to the questions and the analysis of the advertisements give evidence of both literal and inferential understanding of the reading. The analysis of the advertisements also gives evidence of having made sense of group discussion. The student has followed directions well. The centerpiece addresses the instructions much more directly than most performances.

Connecting: The student's analysis of readings and advertisements shows that the student is able to apply the ideas in the readings to a discussion of the advertisements. The analysis of the advertisement in the centerpiece gives additional evidence of being able to relate ideas. The student's choice of a product to advertise suggests some use of prior knowledge in development of the product and advertisement.

Self-reflection: The student's answers to the questions at the end of the assessment seem honest and reflective. The student's desire to write an "honest" ad is consistent with the student's observations about advertising in the instrument activities. References to the student's behavior with respect to advertising is additional evidence. The phrase "ripping a few heart strings" in the rough draft of the centerpiece, and the decision to leave it out in the final draft, suggests the student made judgment about tone.

Evaluating: The student's responses to questions about readings suggest that the student has arrived at an evaluation of advertising practices. The revision also suggests that the student is assessing his or her own writing effectively. The student has a good grasp of the issues involved in responding to the centerpiece instructions.

Involvement: The student sticks to the task quite consistently. The student seems to become more involved as the week progresses. The choice of a product to advertise seems to be based on personal interest and experience. The student follows directions well, correctly identifying what needs to be done in the centerpiece, a significant achievement compared to other students. The student gives attention to the group discussions.

Why not an Advanced Response? This student clearly has an ability with language. The student meets the requirements of the instrument, but the response falls short of truly advanced work. The student could leave a better "thinking" trail, especially during the reading passages. The student's notes are somewhat unfocused. Although the student lists a large number of advertisements in Activity #1, the student does not describe any of them. Some specific analysis of individual advertisements would help to justify the rather blanket criticism of advertising, which appears to have been influenced by the tone of the reading. The student learned what the authors of the reading passages expected the student to learn. Some important detail in the rough draft explaining why a warm bit improves a horse's performance does not appear in the final draft. The student's work is proficient but not advanced.

Scoring The Centerpiece Writing

Substance: The student addresses the instructions. All requirements are met. The messages are clear and no contradictions exist. The content is meaningful and important.

Development: The student is particularly strong in developing the centerpiece writing. Although the opening is a little abrupt, this is probably partly the fault of the instructions. The development is specific. The description of the product makes it easy to visualize. It seems that the student knows what he or she is talking about. The purpose of the product and the reason it should be effective is clear. The conclusion is appropriate.

Coherence: The student follows the organization suggested by the instructions. Transitions depend largely on deliberate repetitions, but the writing has a logical flow. In general, the writing is fluent and displays an ability to subordinate.

Conventions: This criterion and the next prevent the student from achieving an advanced score. Although the errors do not detract greatly from the message, the spelling is not perfect ("peice" and "pleasent") and the student uses several awkward structures, including faulty parallelism (paragraph three). The titles of the magazines in paragraph four should be underlined. Since time was allowed for editing, scorers expect a more polished final draft. The punctuation is relatively sophisticated and generally standard. (The writer suggests that sufficient time did not exist for the writing. This may have made careful proofreading impossible.)

Style: The writing has a appealing voice. The description of the product is businesslike and fluent. The substitution of the word "effected" for "affected" is a very common error and is often found in adult writing. Expressions such as "true facts" in paragraph three and "...ad needs to be placed" in the last paragraph keep the style from being totally effective.

The Student Report

Unfortunately time and technology do not allow for such a complete analysis for each student. However, each student, as well as the parents and teachers, will receive more than a single word or number score. For each student, the scorers will indicate areas needing work. For this example, the scorer's report might look like the following.

Student name:
School:
School District:

Making sense of reading, listening, and viewing: Proficient
Involvement would be supported by providing written evidence of thinking used during the activities leading to the centerpiece.
You should give evidence of self-reflection by making more extensive revisions and extensions of your rough draft.

Centerpiece writing: Proficient
Final work should be proofread for spelling.
Your style would be improved by being careful to choose words that will best convey your message.

Questions and Answers

1. In what grades are students going to take these performance assessments?

Students in grades four, eight, and ten will take the tests.

2. Does every student have to take the tests?

Yes, with very specific exceptions. Some students with exceptional educational needs (EEN) or students covered by Section 504 of the Rehabilitation Act of 1973 are excluded from this kind of testing by their Individual Educational Plans (IEPs). Others may not speak English well enough to take the test. A few may be excluded by parental waiver.

3. These tests last for three to five class periods. What happens if a student is absent?

Teachers will have a considerable amount of latitude in scheduling the test administration. For example, the tests need not be given on consecutive days. This flexibility will allow students to make up parts of the assessment that they may have missed.

4. Are these norm–referenced tests?

No, the assessments are criterion–referenced tests. Students are compared against a high performance standard rather than against one another.

5. Are the WSAS tests my eighth- or tenth-grader took in the fall part of this system?

The Knowledge and Concepts test battery that students in grades eight and ten take in October are components of the Wisconsin Student Assessment System. The current Knowledge and Concepts tests are norm-referenced. In the future, Wisconsin will develop criterion-referenced tests aligned with curriculum taught in Wisconsin schools.

6. There are three parts to this system. Why do students have to take so many tests?

The WSAS is based on the first three Wisconsin Learner Goals. Those are building a knowledge base, developing thinking and communication processes, and applying knowledge and processes. Each type of assessment provides unique information to meet these goals. Together they meet all three goals. The Knowledge and Concepts tests can gather information about a broad area of knowledge. However, in order to test thinking and communication processes, it is necessary to get actual student work on performance assessments. Ability to perform sustained work can best be evaluated in portfolios.

7. Will students still take the Third Grade Reading Test?

Yes. One of the purposes of the third grade reading test is to identify students with reading difficulty early enough for schools to provide proper remediation. This is a minimum competency test intended to identify those students with serious reading problems. It provides important information but does not provide a high standard against which to measure most students.

8. How will the results of these WSAS tests be used?

The individual results will be useful for students and their parents to help make decisions about what to study or what classes to take.

A teacher might use the results of all of his/her students to help make decisions involving lesson plans and teaching methods.

A school district might look at the results to see how successful it is in helping students to achieve the performance standards.

With professional and citizen input, the department sets performance standards expected of all students. Scores identify students who need improvement. If a school or district has many such students, it may be considered in need of improvement.

9. What if my child does poorly on these tests—what does that mean?

Parents should be cautious when using the results of a single test of any kind. When the WSAS is fully implemented, parents and teachers will have three pieces of assessment information. This information, when used with other information from the child's teacher, should be useful in informing parents and students about the students' achievement.

10. I don't have enough time in the school year to cover everything I am supposed to teach as it is. Why do we have to stop doing what is important and give all these tests?

Assessment is one of three essential elements of education. The others are curriculum and instruction. A valid assessment requires that we assess student ability to apply their knowledge and skills. The performance assessments have been designed to model good classroom instruction. Most students find them engaging. Teachers who have field tested the assessments regard them as worthwhile instructional experiences.

11. What if the students in our school district do poorly on the test—what happens then?

There is no provision in the law for any kind of punitive action for districts or schools with a lot of students falling below the standard. If a school district is consistently identified as in need of improvement, it is reasonable to expect that information from the assessments might be useful in planning improvement efforts.

12. Won't teachers just teach to the test?

The performance assessment is designed to assess core concepts and skills in language arts, mathematics, and science. Students should have many opportunities to practice and apply the basic skills and concepts of any content area, so in one sense teachers should be teaching to the test. Students should have the opportunity to practice the kinds of questions that will be on the test. However, it would be inappropriate for teachers to purposefully teach exactly the problems that are on the performance instruments.

13. What about students that have special needs—how will they do these test?

Teachers may decide what accommodations special needs students will require. For example, on a mathematics test, the teacher may have to read questions to a non-reading child. A student with writing disability may have to dictate answers on tape. In all cases, accommodations will be noted.

14. Our district includes all students in our testing but some districts exclude groups of students. How is it fair to compare the districts?

Any exclusion of students to elevate the school or district scores should be considered unethical. As is true with other statewide assessments, results will be reported in two ways. One school and district score will include all students, and the other will exclude students with exceptional educational needs, limited English proficiency, or Section 504 classification.

15. You say some performance items require equipment like science materials or calculators. What if my district doesn't have those items?

School districts must provide basic items like calculators for mathematics and balances, meter sticks, thermometers, and basic glassware for science. Any special materials required for a specific task will be provided as part of the testing materials.

16. Will the results of these tests be published in the newspaper?

Yes. The public will be interested in comparative information. The DPI will report the numbers and proportions of students in each performance category by school and district.

17. I'm a teacher. What if my students do poorly on the test—will my job be in jeopardy?

No. Section 118.30 Wisconsin Statutes specifically exempts the student results from being used in teacher evaluation. Student performance on this test will not be determined by any single teacher, but it will reflect knowledge and skills gained over many years from various courses and teachers.

18. When will these tests be given?

The performance assessment will be given during a six-week period in late winter or early spring of each year. Language arts and mathematics performance assessments will be offered on a voluntary basis in 1996. All students in grades four, eight, and ten will be assessed beginning in 1997.

19. Who will score these tests?

The performance assessment will be scored anonymously under the direction of a scoring and reporting contractor. Wisconsin teachers may be used for part of the scoring. Some scoring may be done on computer by the contractor's trained personnel. Teachers will not score their own students' work.

20. How are the performance standards determined, and who sets them?

Standards will be established by using focus groups of educators and members of the public under the direction of measurement specialists. The standards should be acceptable to all educational stakeholders.

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This article discusses the lack of knowledge about the quality of performance-based assessment, especially the dearth of psychometric theories that apply specifically to that kind of testing. The authors describe the arguments in favor of the practice, the evidence regarding technical quality of existing instruments, and the validity of the method under various policy options. The current federal interest in this kind of assessment motivates the article. "These new forms of assessment are forcing the technical community to rethink fundamental concepts of assessment and to review its methods for assuring quality. ... Satisfying multiple purposes may require the creation of new views of validity."

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Hymes, Donald, et al. The *Changing Face of Testing and Assessment: Problems and Solutions.*. Arlington, VA: American Association of School Administrators, 1991.

Lane, Suzanne, et al. "Principles for Developing Performance Assessments." Paper, 1992 Annual Meeting of American Educational Research Association.
Although drawing its examples primarily from mathematics, this paper addresses some principles for developing performance assessments that are based upon recent work by a number of respected psychometricians. It gives considerable attention to reliability and validity and discusses rubrics extensively. "Cognitive significance (Glaser, in press), content comprehensiveness (Frederiksen and Collins, 1989; Messick, 1989), and fairness (Linn, Baker, and Dunbar, 1991) are but a few areas that will be dealt with in identifying the set of principles."

Linn, Robert, et al. "Complex, performance-based assessment: Expectations and Validation Criteria." *Educational Researcher,* 20(8), pp. 15-21.
The authors offer a series of criteria to be applied specifically to the validation of performance assessments. This is one of the most frequently cited sources in the literature. Among those

criteria suggested are consequences, fairness, transfer and generalizability, cognitive complexity, content quality, meaningfulness, cost, and efficiency. "The arguments, pro and con, regarding traditional and alternative forms of assessment need to give primacy to evolving conceptions of validity if, in the long run, they are to contribute to the fundamental purpose of measurement, the improvement of instruction and learning."

Moss, Pamela A.. "Can There Be Validity Without Reliability?" *Educational Researcher,* March 1994, pp. 5-12.
This article challenges the traditional position that reliability is a necessary but insufficient condition for validity in assessment use. Moss advocates hermeneutic approaches as an alternative to strictly psychometric ones. In short, qualitative means of determining validity might be as legitimate as quantitative ones. This article advocates major changes in the ways of evaluating assessments. "With respect to generalization across tasks, the goal of a more hermeneutic approach is to construct a coherent interpretation of the collected performances, continually revising initial interpretations until they account for all of the available evidence. Inconsistency in students' performance across tasks does not invalidate the assessment. Rather, it becomes an empirical puzzle to be solved by searching for a more comprehensive or elaborated interpretation that explains the inconsistency or articulates the need for additional evidence."

Wainer, Howard. Measurement problems, *Review of Educational Research,* 30,(1), pp. 1-21.

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This article argues that educators have sacrificed validity in favor of reliability in the approach to standardized testing. Wiggins favors giving more attention to validity, including face validity. He also argues that educators should move backward from the ultimate criterion performance even when students' current knowledge is rudimentary. These views have considerable implications for scoring of performance assessments. "We should be seeking a more robust and authentic construct of 'understanding' and a more rigorous validation of tests against that construct. We can begin by keeping in mind that the aim of education is to help the individual become a competent intellectual performer, not a passive 'selector' of orthodox and prefabricated answers."